

# ASIA'S ENVIRONMENTAL CHALLENGES

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BEFORE THE  
SUBCOMMITTEE ON ASIA AND THE PACIFIC  
OF THE  
COMMITTEE ON  
INTERNATIONAL RELATIONS  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED EIGHTH CONGRESS  
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## ASIA'S ENVIRONMENTAL CHALLENGES

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WEDNESDAY, SEPTEMBER 22, 2004

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON ASIA AND THE PACIFIC,  
COMMITTEE ON INTERNATIONAL RELATIONS,  
*Washington, DC.*

The Subcommittee met, pursuant to call, at 1:05 p.m. in room 2172, Rayburn House Office Building, Hon. James A. Leach (Chairman of the Subcommittee) presiding.

Mr. LEACH. The Committee will come to order. First, let me say for the record that we are in the process of voting on the House Floor, and we have two more votes that will be upcoming almost immediately, and so what I thought we would do is give opening statements, myself and Mr. Faleomavaega, then recess for the votes and then turn to our panel.

On behalf of the Subcommittee, I would like to welcome this panel. We appreciate your participation and look forward to hearing your views. At the outset, I would also like to note my appreciation for our distinguished Ranking Member, Mr. Faleomavaega, and also Earl Blumenauer for their strong interest in this issue and helpful recommendations for several of our expert witnesses this afternoon.

As we all understand, discussions about international affairs tend today to revolve around far-reaching questions about the threat of terrorism, the use of force, weapons of mass destruction, the nature of sovereignty, and the right to intervene.

Yet it is also important to understand that the scope of national security has expanded to include not only the traditional concerns of protecting and promoting American well-being from direct threats abroad but the new challenges of a globalized world, including threats of diseases like HIV/AIDS, sustainable development and hunger, environmental degradation, population growth and migration, as well as economic competitiveness.

Today's hearing focuses on the environmental challenges in Asia and the Pacific and their implications not only for the region but the United States and the larger world community.

By way of background, Asia is the most densely populated region in the world, with more than half of the earth's population living on less than a third of the world's arable land area. Despite declining fertility, the region's population is projected to grow by another 50 percent by 2050. At the same time, Asia's economic growth rates are faster than in any other part of the world.

According to many experts, these changes are causing a host of severe environmental problems which are likely to worsen if cred-

ible policy steps are not taken. Asia's rivers and cities, for example, are among the most polluted in the world, and the region is projected to become the leading producer of greenhouse gases by 2020, contributing to the greenhouse effect of rising surface temperature on the earth.

Asia is also the most biodiverse region on earth. As much as 80 percent of the world's endangered species and two-thirds of the world's coral reefs are found in the vast reaches of the Asian landscape. Tragically, however, the region has already lost over 90 percent of its frontier forests. Countries in the region have lost 70 to 90 percent of the original wildlife habitats, and forest loss has accelerated.

America's internationalist tradition has historically included strong leadership to address transnational concerns like environmental protection, including in the Asia-Pacific region. Currently, the principal United States foreign assistance program addressing environmental problems in Asia is the United States-Asia Environmental Partnership, which encompasses East Asia and South Asia. The United States also promotes environmentally sustainable growth through its participation in the World Bank-managed Global Environmental Fund and through its participation in the multilateral development banks.

Perspective is often difficult to apply to issues of the day, including the one we are considering this afternoon. For example, although America's environmental movement dates back to the 19th century, it is arguably only in the last 35 years or so, symbolized perhaps by the establishment of the Environmental Protection Agency and the first celebration of Earth Day, that environmentalism became mainstreamed into American society. Likewise, it should also be self-evident that a multitude of environmental challenges here at home remain to be fully addressed.

Having said that, however, by almost any objective measure, it would appear that the scale of the environmental challenges in Asia demands a more robust response from countries within the region as well as the international community.

In this regard, the Subcommittee is interested in assessing what policy approaches within the region are most likely to strengthen environmental protection, what problems demand urgent attention, and, finally, how can the U.S. and others most effectively assist countries and people of the region to advance a common-sense environmental agenda?

Fortunately, we have with us an outstanding panel of witnesses to help us wade through this policy thicket, and we look forward to your testimony and the discussion to follow.

Mr. Faleomavaega.

[The prepared statement of Mr. Leach follows:]

PREPARED STATEMENT OF THE HONORABLE JAMES A. LEACH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IOWA, AND CHAIRMAN, SUBCOMMITTEE ON ASIA AND THE PACIFIC

On behalf of the Subcommittee, I would like to welcome our distinguished panel of witnesses. We appreciate your participation and look forward to hearing your views. At the outset, I would like to note my appreciation to our distinguished Ranking Member, and most particularly Earl Blumenauer, for their strong interest in this issue and the helpful recommendations for several of our expert witnesses this afternoon.

As we all understand, discussions about international affairs today tend to revolve around far-reaching questions about the threat of terrorism, the use of force, weapons of mass destruction, the nature of sovereignty and the right to intervene.

Yet it is also important to understand that the scope of national security has expanded to include not only the traditional concerns of protecting and promoting American well-being from direct threats abroad, but the new challenges of a globalized world, including the threat of diseases like HIV/AIDS, sustainable development and hunger, environmental degradation, population growth and migration, as well as economic competitiveness.

Today's hearing focuses on the environmental challenges in Asia and the Pacific and their implications, not only for the region, but the United States and larger world community.

By way of background, Asia is the most densely populated region in the world, with more than half of the earth's population living on less than a third of the world's arable land area. Despite declining fertility, the region's population is projected to grow by another 50 percent by 2050. At the same time, Asia's economic growth rates are faster than in any other in the world. According to many experts, these changes are causing a host of severe environmental problems which are likely to worsen if credible policy steps are not taken. Asia's rivers and cities, for example, are among the most polluted in the world, and the region is projected to become the leading producer of greenhouse gases by 2020—contributing to the “greenhouse effect” of rising surface temperatures on earth.

Asia is also the most biodiverse region on earth. As much as 80 percent of the world's endangered species, and two-thirds of the world's coral reefs, are found in the vast reaches of the Asian landscape. Tragically, however, the region has already lost over 90 percent of its frontier forests; countries in the region have lost 70–90 percent of their original wildlife habitats; and forest loss has accelerated.

America's internationalist tradition has historically included strong leadership to address transnational concerns like environmental protection, including in the Asia-Pacific region. Currently, the principal U.S. foreign assistance program addressing environmental problems in Asia is the United States-Asia Environmental Partnership (US-AEP), which encompasses East Asia and South Asia. The United States also promotes environmentally sustainable growth through its participation in the World Bank-managed Global Environmental Fund (GEF) and through its participation in the multilateral development banks.

Perspective is often difficult to apply to issues of the day, including the one we are considering this afternoon. For example, although America's environmental movement dates back to the 19th century, it is arguably only in the last thirty-five years or so—symbolized perhaps by the establishment of the Environmental Protection Agency and the first celebration of Earth Day—that environmentalism became mainstreamed into American society. Likewise, it should also be self-evident that a multitude of environmental challenges here at home remain to be fully addressed.

Having said that, however, by almost any objective measure it would appear the scale of the environmental challenges in Asia demands a more robust response from countries within the region as well as the international community.

In this regard, the Subcommittee is interested in assessing what policy approaches within the region are most likely to strengthen environmental protection? What problems demand urgent attention? Finally, how can the U.S. and the others most effectively assist countries and people in the region to advance a common-sense environmental agenda?

Fortunately, we have with us an outstanding panel of witnesses to help us wade through this policy thicket. We look forward to your testimony and the discussion to follow.

Mr. FALEOMAVAEGA. Mr. Chairman, I want to commend you for holding this hearing regarding the Asia-Pacific region's environmental challenges.

Asia is the most densely populated region in the world. To my understanding, two-thirds of the world's population resides in the Asia-Pacific region, a population also living on less than a third of the world's arable land areas. Despite declining fertility, the region's population is projected to grow by another 50 percent by the year 2050.

Mr. Chairman, I compliment and commend your statement in giving some of the environmental information about the environ-

mental issues affecting this region of the world. There is one environmental issue that has been widely debated throughout the Asia-Pacific region, and I sincerely hope that our expert witnesses who have been invited to testify will touch on this issue, and the issue is global warming.

I remember, Mr. Chairman, about 3 years ago when our Secretary of State, Colin Powell, testified before this Committee, and I specifically asked him whether this Administration has made a decision on whether to support the Kyoto Protocols that for years have been part of the discussions among the nations not only in the Asia-Pacific region but, I think, throughout the whole world. I thought very much that there was going to be a very positive indicator.

Well, the problem was, Mr. Chairman, that Secretary Powell's response was that neither the State Department nor the Administration has formulated a position and that it would take probably another 3 or 4 months before the Administration would then make an announcement. Well, to my amazing surprise, Mr. Chairman, a couple of weeks later—and I think no one, probably, was more surprised than Secretary Powell himself—the White House immediately made a statement simply saying that we are getting rid of the Kyoto Protocols, given the fact that 97 Senators voted against the proposed protocols. But I think this was indicative of how the Administration has treated an environmental issue that is so important, especially to this region of the world.

I know that Secretary Powell was a little embarrassed by it all, but to this day, I still have some very serious questions that if there is any way that the Administration could have at least said, "Well, we do not agree with some of the provisions of the Kyoto Protocols, but we will continue to dialogue, to continue meeting." But to just absolutely cut unilaterally any notion of discussing or even expressing concerns about the unevenness of how emissions standards were to be given equally not only to countries like China or India—I can understand that perfectly. But for us to unilaterally just simply say, the heck with the Kyoto Protocols; we do not agree with whatever was proposed, I think that kind of put a damper on whether or not our Government or this Administration is really serious about environmental issues.

I think, given the fact that this region of the world definitely impacts not only our economy and our security, but the whole social fabric of this planet, it will have an impact on whatever environmental issues are going to be taken up by countries of the Asia-Pacific region. I want to commend you again for your efforts in putting this to a hearing, at least as a matter of record, even though in a matter of weeks we will be adjourning, but I think this is a good start. Then we will at least establish a record to see where we need to go with the next Congress in addressing this issue, not only the Asia-Pacific region but especially for the rest of our planet. With that, Mr. Chairman, I thank you, and I look forward to hearing from our witnesses.

Mr. LEACH. Well, I thank my distinguished Ranking Member. I have never responded, but there is something that I want to mention. I am one who thinks that the case for developing an international treaty like the Kyoto Protocols was compelling and over-



whelming, but if you develop it in such a way that the majority of the population and the majority of land mass from Asia was exempted from the requirements of the protocol, one has to ask the question: Was it good environmentalism to develop such a treaty, or was it political environmentalism? And I think that question has never been asked the right way, and at the moment, we desperately need a new approach, and we desperately need a new treaty. But whether that base as a treaty is helpful or harmful is something that we are all going to have to think through very deeply.

Since this Committee is about Asia, we have to note, the Kyoto Protocol would have produced not only no restrictions on the vast majority of Asia and its population, but an incentive to move more and more anti-environmental types of production to that region, both. And so from this Subcommittee's point of view, it is hard to eulogize the Kyoto Protocol, but it is easy to say we have got to fix the circumstance very profoundly and share in that fix.

Mr. FALEOMAVEGA. Mr. Chairman, I could not agree with you more. The gist of what I was simply saying is, yes, we can disagree about the provisions of the Kyoto Protocols, and I do disagree. In fact, we had some very conscientious, corporate community leaders in our own country who were willing to initiate on their own to comply or to work toward improving the environment, but I think what I was concerned about is that we did not have to altogether just cut the whole thing out without at least continuing the dialogue, without at least expressing our concerns to the Asian countries, you cannot have your cake and eat it too. You have to throw in a couple of marbles, too, to make sure that we all work cooperatively and not just our country take the burden. That is just my gist.

Mr. LEACH. So that there is clear collegiality here, I agree with you—

Mr. FALEOMAVEGA. Thank you, Mr. Chairman.

Mr. LEACH [continuing]. Very much, Eni, on that point.

Mr. FALEOMAVEGA. Thank you. Thank you.

Mr. LEACH. Now we are in a pickle. We have a vote to be followed by a vote, and so you have been forced to listen to the two of us. We may have another Member or two come, so why don't we recess at this point and reconvene? It will probably be 20, 25 minutes. The Committee is in recess.

[Whereupon, at 1:15 p.m., a recess was taken.]

Mr. LEACH. The Committee will reconvene. Let me begin and ask Mr. Blumenauer if he also has an opening statement.

Mr. BLUMENAUER. Thank you, Mr. Chairman. I apologize for the delay. You got back from those votes faster than I did. But I do deeply appreciate what you have done here today in terms of scheduling this hearing. It is common practice for us to extol the leadership of our Committee for scheduling important hearings, but there is none more important, in my judgment, than dealing with the issues of the environment in the area of this Subcommittee's jurisdiction in Asia.

I encounter these problems in my hometown of Portland, Oregon, as people breathe the air that is polluted from the dust of the Gobi Desert that goes through the industrial cities of China, becoming

contaminated and ending up in the lungs of children in my community. It was my pleasure 2 years ago to be a part of the Global Environmental Summit in Johannesburg, where we made a commitment. The United States, I am pleased to say, did step up in terms of cutting in half the population of the world that does not have adequate sanitation or drinking water, and the bulk of this problem lies, again, in Asia.

A number of Members of this Committee visited China earlier in the year, looking at the consequences of the rapid industrialization of that country. I would submit my entire statement to the record, Mr. Chairman. I do not want to take undue time, but it seems to me that there is nothing that is more important for the security of America, for world peace, for the situation as far as the global environment, as well as the economic applications, than focusing on the environmental health of Asia; what we are doing, what we are not doing, and how we can build these programs and policies because I think, in the final analysis, these should not be partisan. They actually are not nearly as expensive as cooperation with our partners in NGOs, other governments, and the private sector.

I appreciate your helping build the record for this Subcommittee of these problems, and I look forward, at the conclusion of this effort, Mr. Chairman, to work with you and other Members of the Committee to see if there are some things that our legislative initiatives may do to help address directly the problems that are before us. And I could not be more pleased with the panel of experts that has been brought together today. As I say, I will submit my full statement for the record and look forward to hearing from them. Thank you very much.

[The prepared statement of Mr. Blumenauer follows:]

PREPARED STATEMENT OF THE HONORABLE EARL BLUMENAUER, A REPRESENTATIVE  
IN CONGRESS FROM THE STATE OF OREGON

Mr. Chairman, you have assembled an outstanding group of experts, and I appreciate them all being here. As part of our duty in this Subcommittee to deal with relations of the United States with Asia and the Pacific, we cannot ignore the region's environmental challenges.

I would like to focus my statement on two particular pieces of this that I have worked on: China and Water.

With one-quarter of the world's population, all of China's challenges are daunting. The environment is not an exception. Rapid economic development has begun to raise the standard of living in China, but it has had considerable environmental consequences. We will learn from our speakers about how China has depleted its natural resources and polluted its air and water. We will hear that there is a problem with enforcement of existing environmental laws, and that local governments have trouble balancing a clean environment with their growth and employment priorities.

China is a place where we can see both the environmental costs of rapid economic development and also the economic costs of environmental degradation. Environmental challenges are already standing in the way of economic development. The World Bank has estimated that pollution is costing China an annual 8-12 percent of its GDP in direct damage, including the impact of crops on acid rain, medical bills, and lost work from illness, to name a few.

What we see here is a vicious cycle: the need for development to lift people out of poverty, but environmental degradation associated with that development that is keeping them there. What the country needs is sustainable development, and I hope our witnesses can address this. I note that there is progress underway: this summer in Bonn, Germany, at an international renewable energy conference, China pledged to generate 10 percent of its power through renewable sources by 2010.

Another important issue impacting China and the entire region is water. Right now more than 1.1 billion people in the world lack access to safe drinking water:

that's one in six people. More than 2.3 billion people—one in three—lack access to adequate sanitation. It is estimated that 2 million people die each year from water-related diseases.

Pan Yue, head of China's State Environmental Protection Administration, has called water "the bottleneck constraining economic growth in China." About half the population of China lacks access to clean water.

I was pleased that the world community started to address this challenge two years ago in Johannesburg, South Africa at the UN World Summit on Sustainable Development. There the world community committed itself to halving the proportion of people who lack access to clean drinking water and sanitation by 2015. In order to achieve the U.N. targets, 630 million people would have to be supplied with safe drinking water. That's about 175,000 more a day for the next 10 years. The sanitation challenge is even more daunting: Over the next decade, 1.4 billion people—or about 400,000 a day—would have to be provided with service.

Are we meeting these goals? Yesterday I introduced a resolution, co-sponsored by a bi-partisan group of members who were in Johannesburg with me, reaffirming this country's commitment to those goals. The resolution asks the President to report to Congress on how we are doing in our efforts.

It seems to me that although daunting, when compared to the other issues facing the world community right now, water is an issue that we can solve. Dr. Ralph Daley, director of the United Nations University's International Network on Water estimates that it would cost less for the developed world to provide water services to the poor than what the US spends on carbonated soft drinks in a few years. According to Dr. Daley, if developed nations shouldered the full cost of providing water services to all those in need around the world, it would be about 4 cents per person per day. But if developing nations paid half their water costs, which they already do, that would leave those of us in the developed world with a bill of just 2 cents a day per person, or \$7 a year. This is less than the price of a takeout pizza.

I recognize that positive steps are being taken to help Asia meet its environmental challenges, and we will hear about many of them today. I'm proud to say that we have a successful program in Portland to help countries like China develop sustainably and learn from our experiences. The China-U.S. Center for Sustainable Development was founded in 1999 in Portland by the International Sustainable Development Foundation to exchange delegations and ideas about sustainable development between our two countries. It represents a new form of cooperation among the business community, governments, universities, research institutions and non-governmental organizations. I'd like to recognize the achievements of this program and hope that it can be just one of many partnerships between Asia and the United States on this issue.

Mr. LEACH. Thank you very much, Earl, and as I think should be clear to the record, this meeting is exclusively at your leadership request, and I am very appreciative.

Our four witnesses today are extremely distinguished. Ruth Greenspan Bell currently directs IIDEA at Resources for the Future, a program designed to help countries build more effective systems of environmental protection. Prior to this, she worked as Senior Adviser to the Assistant Secretary of State for Oceans, International, Environment, and Scientific Affairs and at various management positions in EPA's Office of General Counsel.

Dr. Elizabeth C. Economy is C.V. Starr Senior Fellow and Director, Asia Studies, at the Council on Foreign Relations. She has a book entitled *The River Runs Black: The Environmental Challenge to China*, and is also co-editor with the late Mike Oxenburg of *China Joins the World*, and she is also responsible for a series of other publications. Dr. Economy has served as Adjunct Professor at Columbia, the Johns Hopkins University, and the University of Washington.

Mr. Mingma Norbu Sherpa is Director of Conservation, Asia and Pacific Program, with the Wildlife Federation, U.S. He is responsible for the development and oversight for a variety of projects in the Asia-Pacific region, including Nepal, Bhutan, India, Pakistan, and China, and, most significantly, is a Midwesterner—we like

that—having been a Fulbright scholar at the University of Michigan.

Mr. Christopher Flavin is President of Worldwatch, where he serves on the board of directors. He is engaged in international climate change studies and energy policy discussions and has participated in the Earth Summit in Rio de Janeiro in 1992, the Climate Change Conference in Kyoto in 1997, and the World Summit on Sustainable Development in Johannesburg in 2002. Mr. Flavin has written for publications, including the *New York Times*, *Technology Review*, *The Harvard International Review*, and *Time* magazine, and we welcome you, Mr. Flavin.

Unless you have developed another methodology, I will introduce you in the order in which you have been introduced. Ms. Greenspan Bell. And, by the way, on this floor of the Rayburn House Office Building, anyone with the name, Greenspan, is well received—please proceed—however extended the relationship might be.

You may want to press your button, and if I could ask, you will find if you hold the mike closer, it makes it easier, yes.

Ms. BELL. Is that okay?

Mr. LEACH. That is excellent. Thank you.

Ms. BELL. Great.

#### **STATEMENT OF RUTH GREENSPAN BELL, RESIDENT SCHOLAR, RESOURCES FOR THE FUTURE**

Ms. BELL. Mr. Chairman and distinguished Members of the Committee, thank you for inviting me here today. I am really pleased that you took on this subject. It is a really important subject.

My name is Ruth Greenspan Bell, and I am a resident scholar at Resources for the Future, a nonpartisan research organization. Researchers at RFF conduct independent analyses of natural resource and environment issues, but the institution itself takes no institutional positions on public policy matters, so the views I present today about Asia and the environment are mine alone.

The challenges presented by Asian environmental degradation are no secret. When you visit many of Asia's mega-cities, your own lungs will tell you a lot about the dismal state of air quality. Of the world's cities ranked by the total range and average level of particulate pollution, primarily airborne soot from industry vehicles and cooking fires, 13 of the dirtiest 15 are in Asia. And when we visit Asia, we are always told, rightly, to avoid the water at all costs. But bottled water in a nice hotel is not an option for the millions upon millions of residents of these cities.

More than half a million of Asia's infants die each year because of inadequate water supply and poor sanitation. The level of median fecal coliform bacteria is three times the world average, and it is 50 times higher than the level recommended by the World Health Organization.

The picture is equally dismal for loss of wildlife habitat to agriculture, infrastructure development, deforestation, and land degradation. In the early 1990s, deforestation rates in East Asia were the highest in any part of the world.

What is being done about this? If you look at the legal situation, and I am a lawyer by training, you might be temporarily reassured. Almost all Asian cities and countries have environmental laws.

Sometimes they look very, very strict on paper. The laws are often not even new; some go back as far as the period following the 1972 Stockholm meetings. Even China, historically not a law-based society, now has environmental laws, but the laws do not work very well. There are huge gaps between the aspirations contained in the laws and on-the-ground conditions.

And why is this? Well, the reasons vary country by country. Some, like China, have little experience using laws to manage social problems. In others, economic goals trump the environment. Sometimes resources are the problem. More often than not, environmental authorities are significantly understaffed. Compare our own EPA, which has 18,000 people working here in Washington and around the country, and building on state and local bodies, with the comparable Indian agency: It has about 940 people who are spread among the entire range of environmental protection tasks. This is fewer than the State of Connecticut Department of Environmental Protection, for example.

When enforcement cases are brought, the response time is very, very slow. In India, for example, lower court cases can take 15 or more years to come to resolution. A violator can pretty much bank on never being brought to justice.

This is, admittedly, a depressing picture. Where do I see signs of change? I do not see them in the conventional answers like better technology because technologies can too easily be disabled by human beings.

Perhaps the most compelling, and hopeful, story is the growing environmental activism throughout the region, often taking place under difficult, adverse circumstances. Creative advocates have found ways within their local laws to prod and push their own governments into action. In historically top-down societies, these advocates are creating pressure from below for change. In a broader sense, they are building democratic processes.

Public-interest litigation in the Indian Supreme Court has resulted in some genuine progress on seemingly intractable problems. The one I know best is the shift of more than 90,000 commercial vehicles in Delhi to compressed natural gas and away from dirty, and often adulterated, diesel fuel. This is a huge triumph for the environment and for the advocacy community. The court has also supervised efforts to protect the Taj Mahal from environmental damage. These lawsuits have inspired copy-cat suits all over Asia, in places like Nepal, Pakistan, Sri Lanka, and Bangladesh, with varying degrees of success.

In the Philippines, laws modeled directly on United States practices allow citizens to bring environmental enforcement cases when the official environmental authorities have failed to act. Brave advocates have used them to challenge, for example, illegal logging practices.

Advocates in Indonesia and Taiwan have formulated sophisticated public campaigns based on good research and very astute use of the media.

Perhaps the most inspiring example for me is China. Wang Canfa is becoming something of a folk hero for using the courts to seek damages from polluters. His self-appointed task is not an easy one. There are no independent judges in China. Every one of

Wang's cases is completely novel. And litigation, as I know, is about facts, but China does not have a Freedom of Information Act, and it is really difficult to obtain discharge information. Litigation is only one part of his job. He also has to spend time educating judges about their own responsibilities.

To some extent, I think we should be quite proud because many of these efforts were influenced by the environmental movement in the United States, particularly the cases brought in the 1970s, where our Government was sued to force it to do its job in a timely manner.

Like the Natural Resources Defense Council, Environmental Defense, and the Sierra Club, these Asian advocates are working within the system and making the system work. Most important, if you step back a bit, it is easy to see an even larger benefit from their activities than merely improving the environment, as critical and important as that is. These advocates are reinforcing democratic trends, and they are building a more vibrant civil society. If we encourage these advocates and provide appropriate support, we may share with them the double-dividend of a cleaner environment and greater respect for law as an institution for change.

You asked me to suggest policy prescriptions that might facilitate a cleaner Asian environment. In the development-assistance world, there is a real tension between showing results to the funders and support for long-term efforts where the payoffs are more uncertain. I would hope that Congress would support investments in human capital and signal that it recognizes changing complex problems that have come into being over many, many years is itself a multi-year process brought about by people.

I would also encourage widespread sharing of the lessons learned by the U.S. over many decades of environmental activism. We should be providing robust support to the brave Asian environmental pioneers who are using these and other models to try to correct the dangerous practices that have damaged their air, water, and land and created dire perils to human health. Thank you very much.

[The prepared statement of Ms. Bell follows:]

PREPARED STATEMENT OF RUTH GREENSPAN BELL, RESIDENT SCHOLAR, RESOURCES FOR THE FUTURE

Mr. Chairman and distinguished members of the Committee, thank you for inviting me to meet with you today. My name is Ruth Greenspan Bell and I am a resident fellow at Resources for the Future, a nonpartisan research organization established in 1952 upon the recommendation of the presidentially appointed Paley Commission. Researchers at RFF conduct independent analyses of issues concerned with natural resources and the environment. Resources for the Future takes no institutional position on legislative, regulatory, judicial, or other public policy matters. The views I present today about Asia and the environment are mine alone.

The challenges presented by Asian environmental degradation are no secret. When you visit many of Asia's mega cities, your own lungs will tell you a lot about the dismal state of air quality. Of the world's cities ranked by the total range and average level of particulate pollution—primarily airborne soot from vehicles, cooking fires, and industry—13 of the dirtiest 15 are in Asia.

And when we visit Asia, we are told, rightly, to avoid the water at all costs.

But bottled water in a nice hotel is not an option for the millions upon millions of residents of these cities. More than half a million of Asia's infants die each year because of inadequate water supply and poor sanitation. The level of median fecal coliform bacteria is three times the world average. It is 50 times higher than the level recommended by the World Health Organization.

The picture is equally dismal for loss of wildlife habitat to agriculture, infrastructure development, deforestation, and land degradation. In the early 1990's deforestation rates in East Asia were the highest in any part of the world.

Why is this happening? What is being done? If you look at the legal situation, you might be temporarily reassured. Almost all Asian countries have environmental laws. Sometimes they are extremely strict. These laws are often not new—some go back as far as the period following the 1972 Stockholm Convention. Even China—historically not a law-based society—now has laws.

But the laws don't work very well. There are huge gaps between aspirations contained in the laws and on-the-ground conditions.

Why is this? The reasons vary country by country. Some, like China, have little experience using laws to manage social problems. In others, economic goals trump the environment. Sometimes, resources are the problem. More often than not, environmental authorities are significantly understaffed. Compare our own EPA with 18,000 employees reinforced by state and local bodies, with the comparable Indian agency. It has about 940 people spread among the entire range of environmental protection tasks—fewer than the state of Connecticut Department of Environmental Protection, for example.

When enforcement cases are brought, the response time is very slow. In India, for example, court cases can take 15 or more years to come to resolution. A violator can pretty much bank on never being brought to justice.

This is a depressing picture. Where do I see signs of change? Not in the conventional answers like better technology—technologies can too easily be disabled.

Perhaps the most compelling—and hopeful—story is the growing environmental activism throughout the region, often taking place under difficult, adverse circumstances. Creative advocates have found ways within their local laws to prod and push their own governments into action. Each technique has been forged to fit to the unique conditions, legal systems, and political cultures where the advocates work. In historically “top-down” societies, these advocates are creating pressure from below for change. In a broader sense, they are building democratic processes.

Public-interest litigation in the Indian Supreme Court has resulted in some genuine progress on seemingly intractable problems. The one I know best is the shift of more than 90,000 commercial vehicles in Delhi to compressed natural gas and away from dirty, often adulterated, diesel—a huge triumph for the environment and the advocacy community. The court has also supervised efforts to protect the Taj Mahal from environmental damage. Indian litigators have inspired copycat lawsuits all around Asia—Nepal, Bangladesh, Sri Lanka, and Pakistan, with varying degrees of success.

In the Philippines, laws modeled on U.S. practices allow citizens to bring suits for environmental enforcement where the official environmental authorities have failed to act. Brave advocates have used them to challenge illegal logging practices.

Advocates in Indonesia and Taiwan have formulated sophisticated public campaigns based on good research and astute use of media.

Perhaps the most inspiring example is from China. Wang Canfa is becoming something of a folk hero for using the courts to seek damages from polluters. His self-appointed task is not easy. There are no independent judges in China. Every one of Wang's cases is novel. Litigation is about facts, but China does not have a Freedom of Information Act. It is difficult to obtain discharge information. Litigation is only one part of Wang's job. Another is to educate judges about their responsibilities to act in response to suits such as his.

To some extent, we should be proud because many of these efforts were influenced by the environmental movement in the United States, particularly the cases brought in the 1970s, where our government was sued to force it to do its job in a timely manner.

Like the Natural Resources Defense Council, Environmental Defense, and Sierra Club, these Asian advocates are working within the system and making the system work. Most important, if you step back a bit, it is easy to see an even larger benefit from their activities than merely improving the environment, as critical and important as that is: these advocates are reinforcing democratic trends and building a more vibrant civil society.

If we encourage these advocates and provide appropriate support, we may share with them the double dividend of a cleaner environment and greater respect for law as an institution for change.

You asked me to suggest policy prescriptions that might facilitate a cleaner Asian environment. In the development-assistance world, there is a tension between showing results to the funders, and support for long-term efforts, where the payoffs are more uncertain. I would hope that the Congress would support investments in human capital and signal that it recognizes that changing complex problems that

have built up over many years is itself a multi-year process brought about by people.

I would also encourage widespread sharing of the lessons learned by the U.S. over many decades of environmental activism. We should be providing robust support to the brave Asian environmental pioneers who are using these and other models to try to correct the dangerous practices that have damaged their air, water, and land, and created dire perils to human health.

Thank you very much.

Mr. LEACH. Well, thank you very much. Let me say to all of the panel, without objection, all of your testimony will be fully presented in the record. If you care to summarize, and if you want to elaborate for the record, that is, in your written statement, that would be accepted.

Secondly, I apologize to Dr. Economy for failing to note that you also are a fellow Midwesterner, with a degree from the University of Michigan, and that is well received.

Mr. BLUMENAUER. Her husband is from Portland. [Laughter.]

Mr. LEACH. It is the name that is challenging to us. For someone in this field, you are wonderfully named. I was thinking, you know, we ought to adopt a name like Candidate Right Left and Center. Maybe that is the equivalent of Dr. Economy. I am not sure. Though I am told, and I think it is in your town, that 20 or 30 years ago, a judge refused to allow a candidate to change his name. Do you recall this?

Mr. BLUMENAUER. Yes.

Mr. LEACH. The candidate wanted to call himself "None of the Above." Is that correct?

Mr. BLUMENAUER. I think they settled on a compromise where he just changed his first name to "Re-elect." [Laughter.]

Mr. LEACH. In any regard, Dr. Economy, you are welcome, and please proceed.

#### **STATEMENT OF ELIZABETH C. ECONOMY, PH.D., DIRECTOR OF ASIA STUDIES, COUNCIL ON FOREIGN RELATIONS**

Ms. ECONOMY. Thank you very much, Mr. Chairman and Members of the Committee, for inviting me here to speak with you about China's environmental challenges and their implications for the United States.

I think you are aware already of the nature of China's environmental problems. Let me just note a couple of statistics that, I think, highlight the extent of the challenge. First, in terms of air quality, the World Bank, in 2001, reported that China possessed 16 of the world's 20 most-polluted cities. About a quarter of China's land is affected by acid rain, and about a third of its agricultural land. China, which is roughly the same size as the United States, is already more than one-quarter desert, and the desert is advancing at a rate of 1,300 square miles per year.

But if you would ask any Chinese what the greatest challenges that he or she faces, I think he or she would say water, access to water. About 60 million people in China find it difficult to get enough water for their daily needs, and more than 10 times that many drink contaminated water on a daily basis.

But it is not the environment, in and of itself, that is now causing the Chinese leadership to take note, but really it is the environment's impact on a range of other social, political, and economic



issues. Chief among them is the environment's impact on China's economic productivity. In 1997, the World Bank published a report that suggested that environmental degradation and pollution costs China the equivalent of 8 to 12 percent GDP annually. China now, for the first time, over the past year or so, has started to do its own work on the economic impact of the environment and is coming up with similarly staggering figures. Just this year, referring to 2003, the Chinese Government said that the economy lost \$28 billion in industrial output from water scarcity. Acid rain cost \$13 billion, and desertification, more than \$6 billion.

China, for the first time, is now initiating a green GDP project to try to calculate the costs of environmental degradation and pollution in a systematic form. They have just started a six-province pilot project.

The second issue that China is going to have to confront over the next 20 years is a growing number of environmental refugees. Chinese and Western analysts estimate that between 20 and 30 million Chinese will have to migrate internally because of lack of access to water or arable land.

I think the most tragic of the consequences of China's environmental practices is undoubtedly the impact on public health. The World Bank, again, estimates that 300,000 people in China die prematurely from respiratory disease as a result of pollution. In fact, they did a study in the aftermath of SARS that demonstrated that SARS had the greatest impact where air pollution was the greatest. I think one of the most understudied and underappreciated issues is how much China's water pollution is affecting the public health of the Chinese people because all along China's major river systems there are entire villages that are reporting much higher rates of cancer, tumors, stunted growth, diminished IQs, and spontaneous abortion. I think that the full extent of this is not known, but I would estimate certainly millions of people.

And, finally, social unrest. Obviously, of prime concern to the Chinese Government is social stability, and back in the mid-to-late 1990s, the Chinese Government published a report that said that the environment was one of four leading causes of social unrest in the country, and this is borne out by media reports of frequent protests in the country, again, when farmers do not have access to water for their crops or when people do not get the proper redress for a polluting firm. They try to take action against it, and nothing is done. People protest and sometimes violently.

How has China responded to this range of environmental challenges? I think the best way to think about it is that it has essentially followed the same model as it has with economic reform, which means that they want to maintain a small, central bureaucracy; they devolve authority to local officials for environmental protection; they try to engage the international community as much as possible; and they have opened the door to private initiative.

Just briefly, it echoes what Ruth was saying about the state of the Environmental Ministry in India. In China, the State Environmental Protection Administration has 300 people, so they are even worse off than they are in India. China invests about 1.3 percent of its GDP annually into environmental protection, which puts it on a par with other developing countries at its per capita GDP. But

Chinese experts estimate they need at least 2.2 percent to keep the situation from deteriorating further, and the State Environmental Protection Administration, in fact, announced this year that they are US\$9 billion short in terms of their investment for pollution-control projects that was promised in the tenth 5-year plan, which ends next year.

So the greatest burden really rests with local officials for environmental protection, and this has produced what I call a “patchwork for environmental protection,” namely that areas with greater financial resources, more pro-active local leaders, and strong ties to the international community are doing a much better job. They are investing more of their own resources in environmental protection, places like Shanghai, Dalian, Zhongshan, many of those wealthier coastal cities. But this is leaving many other parts of the country—in fact, the majority is simply falling further and further behind.

Enforcement of environmental protection in China overall is quite weak. When the State Environmental Protection Administration does its inspections, and it often does these sort of mass, nine-province kind of inspections, they find, on average, that a third of the enterprises they inspect use their pollution-control technology effectively; a third do not use it, although they have it; and a third simply have not adopted it.

The international community has been critical to China’s environmental protection effort. International governmental organizations—World Bank, Asian Development Bank, UNDP—coupled with international nongovernmental organizations, have made China a top priority. It is clear that they view China as one of the great frontiers for environmental protection.

Multinationals, too, are playing a very important role, a mixed role. China has criticized firms from South Korea, Taiwan, and Hong Kong for offloading their most-polluting industries into China. On the other hand, there are many examples of companies, like Shell or Manganese Metal from South Africa or Corning, which are doing a variety of things, everything from undertaking much more stringent environmental impact assessments to funding nongovernmental organizations in China, to working with the Chinese Government to help them raise standards, which, in turn, will make their products more competitive.

But I think that Ruth is right. The most dramatic transformation in China, certainly, in terms of environmental protection over the past decade has been the rise in civil society. It is nothing short of astonishing. In 1994, China had one registered environmental NGO, Friends of Nature. Today, a decade later, there are more than 2,000 registered NGOs and, I would guess, between 500 and 1,000 more that are not registered. They began focused only on biodiversity protection and environmental education. Today, environmental NGOs are taking polluting firms to court. They are getting 15,000 signatures on the Internet to bring dam construction to a halt. They are engaged in every aspect of environmental protection.

They are also, and I think this is critical, at the forefront of pushing political reform in China. Many of the people who started these environmental NGOs were political refugees from Tiananmen who saw the environment as a means of advancing democracy in China. Many of the people who were not democracy activists have

come to be democracy activists through their belief that effective environmental protection relies on many of the principles of democracy.

So I think the Chinese Government, recognizing this, has, in fact, established a number of limitations on environmental NGOs. We can talk about those if you are interested. They have to do with monitoring membership and other kinds of things like that.

Let me just finish up by saying a few words about why I think it matters for us. Most obviously, of course, we care what China does in its environmental practices because of its impact on the global environment. Climate change, biodiversity, ozone depletion, regionally acid rain, trade in tropical timber; all of these things, China is one of the most important—if not the most important—actor shaping the global environment.

Beyond that, what I hope has come through from my remarks is that for all of us concerned with trying to understand what China is going to look like in 2020 or 2025, it is absolutely critical to understand what is going on with China and the environment because the environment is having an enormous impact on a full range of social, political, and economic opportunities and constraints that the leadership is going to face.

And, finally, in terms of what we ought to be doing here in the United States, let me say at the outset, I am not a proponent of simply dumping assistance into China. China can be a sinkhole for international assistance. I do think, however, that we have within the U.S. Government now many organizations—USAID, USAEP, the Clean Technology Initiative, OPIC, TDA—all of which can either become engaged in China (because they are not right now) or can be better funded because I think if we are trying to advance not only environmental protection but the rule of law, democracy, and improve our burgeoning trade deficit, that all of these organizations can be better utilized to advance those goals. Thank you.

[The prepared statement of Ms. Economy follows:]

PREPARED STATEMENT OF ELIZABETH C. ECONOMY, PH.D., DIRECTOR OF ASIA STUDIES, COUNCIL ON FOREIGN RELATIONS<sup>1</sup>

Mr. Chairman and members of the Committee, I would like to thank you for inviting me to discuss China's environmental challenges and their implications for the United States. I would like to focus my remarks on four key points:

- First, China's economic miracle over the past two decades has produced an environmental disaster with skyrocketing rates of air and water pollution, severe land degradation, and increasing resource scarcity.
- Second, this environmental crisis is engendering a range of other social, political, and economic challenges within China.
- Third, China's environmental enforcement remains unequal to the challenge.
- Fourth, there are significant opportunities for the United States to assist China's environmental protection effort in ways that serve core U.S. political and economic priorities.

#### I. ECONOMIC MIRACLE TO ENVIRONMENTAL DISASTER

*China has received significant international acclaim for its rapid economic growth. Over the past two decades, China's GDP has increased at a rate of 8% or more annually and has propelled hundreds of millions of Chinese out of pov-*

<sup>1</sup>The Council on Foreign Relations takes no institutional position on policy issues and has no affiliation with the U.S. government. All statements of fact and expressions of opinion contained in this testimony are the sole responsibility of the author.

*erty. Yet this economic development, coupled with a weak enforcement apparatus for environmental protection, has also resulted in a range of devastating consequences for the environment.*

In terms of air quality, China's overwhelming reliance on coal for almost three-quarters of its energy needs has made its air quality among the worst in the world. In 2001, the World Bank reported that 16 of the 20 most polluted cities in the world were in China, and in 2002, almost two-thirds of Chinese cities tested failed to achieve standards set by the World Health Organization for acceptable levels of total suspended particulates, which are the primary culprit in respiratory and pulmonary diseases. Acid rain, resulting from sulfur dioxide emissions from coal burning, affects over one-fourth of China's land, including one-third of China's agricultural land, damaging crops and fisheries throughout affected provinces. China's dramatic growth in automobile use poses the greatest future threat to China's air quality. China today has over 20 million cars, trucks, and buses; 20 million agricultural vehicles, and 50 million motorcycles. By 2020, conservative estimates suggest that China will have 110 million cars; critically, national standards for carbon monoxide and nitrogen oxide are well below those in the United States. Foreseeing the challenge, the Chinese government is putting into place fuel efficiency standards that exceed those of the United States, and working to experiment with higher standards.

Unregulated economic development has also contributed to the devastation of China's forests. China's forest resources rank among the lowest in the world-forested land accounts for approximately 16% of China's land compared to 24% for the United States. This deforestation has contributed to biodiversity loss, soil erosion, and much of the horrific flooding that China experiences on an annual basis. As China has become a major source of furniture and other wood products in the international market, this too has driven an increasingly profitable but environmentally problematic illegal logging trade. The Chinese government's efforts to crack down on domestic illegal logging have encouraged Chinese logging companies to expand into Burma, Indonesia, and the Amazon, where they have gained a reputation for evading local logging regulations.

Deforestation, along with the overgrazing of grasslands and over-cultivation of cropland, has also dramatically changed the geography of the country, contributing to the rapid desertification of China's north and west. China, which is roughly the same size as the United States, is now more than one-quarter desert, and desertification is advancing at a rate of roughly 1300 sq. miles annually. In addition, twenty to thirty sand and dust storms now plague northern China annually. In March 2002, one two-day storm dumped more than 30 tons of sand on Beijing before moving on to South Korea. These suffocating dust storms reduce visibility, slow traffic, and exacerbate respiratory problems. They travel frequently to Japan and Korea and have even affected the United States in years past.

The most serious environmental challenge China confronts, however, is access to water. This stems from both growing demand and rapidly increasing levels of pollution. The country's annual per capita water supply is 25% of the global average. By 2030, the per capita supply is expected to fall from 2200 m<sup>3</sup> to below 1700 m<sup>3</sup>, the World Bank's definition of a water scarce country. During that same period, water demand is expected to jump from 120 billion tons to 400 billion tons annually. Already, about 60 million people in China find it difficult to get enough water for their daily needs. The search for water has led to overpumping of groundwater along much of China's coast, and the resulting subsidence is necessitating the relocation of thousands of people. Climate change and overuse have also contributed to serious water shortages in much of China's interior provinces: in Qinghai, the Chinese government reported that by 2001, 2000 lakes and rivers had dried up with severe consequences for local industry, hydropower, and the volume of water in the Yellow River. Water pollution poses an equally serious problem. Approximately 700 million people drink contaminated water on a daily basis. More than three-quarters of the water flowing through China's urban areas is considered unsuitable for drinking or fishing. Much of China's pollution stems from industrial waste water from paper and pulp mills, printing and dyeing factories, chemical plants and other small, unregulated township and village enterprises. Agricultural runoff is also a severe problem.

To put it simply, the environment is under stress on every front.

## II. TRANSFORMING THE SOCIAL, POLITICAL AND ECONOMIC LANDSCAPE OF CHINA

*China's pollution and environmental degradation are also transforming the social, political, and economic landscape of China by incurring costs to Chinese*

*economic productivity, engendering waves of internal migration, contributing to wide scale public health problems, and leading to social unrest.*

- China's leadership is just now awakening to the fact that its environmental practices are exerting a profoundly negative impact on the country's economy. The World Bank reports that the cost of environmental pollution and degradation in China is equivalent to 8–12% of GDP annually. Lost days of work, contaminated crops and fisheries, and industry closures due to lack of water all contribute to such costs. In the past year, China's State Environmental Protection Administration has begun to calculate these costs on its own, arriving at figures that support the World Bank's estimates: for example, the government announced that in 2003, water scarcity had cost China \$28 billion in lost industrial output; acid rain had cost the economy \$13 billion; and desertification cost China more than \$6 billion. In September 2004, officials in Shanxi province claimed that if the costs of environmental degradation and pollution were incorporated into calculations of the Shanxi domestic product, they would negate all growth for the past decade.
- No secondary impact of China's environmental crisis is as tragic as that of public health. Chinese and western analysts suggest that 300,000 people die prematurely in China annually due to respiratory disease caused from pollution (excluding smoking). Entire communities along China's major river systems report staggering rates of cancer, tumors, stunted growth, spontaneous abortion and diminished IQs due to the high level of contaminants in the soil and water. The relationship between environmental pollution and public health was brought into sharp relief by a World Bank report that indicated that SARS was most potent in areas where the levels of air pollution were the highest.
- China must also now settle tens of millions of farmers and others who are forced to migrate in search of arable land and access to water. During 2001–2020, Chinese and western analysts estimate that China will have to accommodate 20–30 million environmental refugees. This is likely to strain urban sanitation and other services in several of China's major cities. As migrants become integrated into the local economies and become consumers, they also will contribute to China's energy challenge. Urban residents on average consume 250% more energy than their rural counterparts.
- The specter of social unrest provides yet another reason for China's leaders to pay greater attention to the environment. In the mid 1990s, the Central Committee of the Chinese Communist Party published a report acknowledging that environmental degradation and pollution was one of the four leading causes of social unrest in the country. More recently, in September 2004, a survey of Chinese scholars and think tank analysts reported that China would likely experience serious social unrest as a result of a combination of social challenges including environmental problems, corruption, a weak financial system, poverty and unemployment. Occasional media reports of violent protest by farmers who can't access water and citizens who have not had their environmental concerns addressed effectively lend support to such studies.

### III. CHINA'S ENVIRONMENTAL PROTECTION STRATEGY

*China's environmental protection strategy is modeled on its approach to economic reform: maintain a small central bureaucracy; devolve authority for environmental protection to local authorities; encourage private initiative; and seek financial, knowledge and managerial assistance from abroad.*

China's State Environmental Protection Administration (SEPA) is the chief government agency with responsibility for the environment. SEPA boasts a highly talented and committed staff, but it is grossly understaffed and underfunded. There are only 300 full time employees in SEPA (compared to 6000 in the US EPA). China reportedly devotes 1.3% of its GDP to environmental protection, which places it well within the bounds of other countries at its same per capita GDP, but Chinese scientists estimate that the country needs to invest at least 2.2% of GDP just to keep the environmental situation from deteriorating further. Moreover, Chinese environmental experts argue that some of this funding is lost to corruption or siphoned off for infrastructure development masquerading as environmental protection. In early 2004, SEPA announced that the government had failed to deliver on US\$9 billion of investment in pollution control projects promised in the Tenth Five Year Plan (2001–2005). A new Vice-Minister of SEPA, Pan Yue, has been very aggressive, how-

ever, in using the media to take SEPA's case directly to the people in order to bring to bring public pressure on recalcitrant ministries and ineffectual local officials.

Much of China's environmental protection effort relies on initiative by local officials—an approach that has produced a patchwork of environmental protection. Wealthier regions with highly proactive mayors or governors and strong ties to the international community tend to invest more in absolute terms, as well as a greater percentage of their local revenues into environmental protection. Shanghai, Dalian, and Zhongshan exemplify such regional environmental activism. At the same time, many of the wealthier areas that are reporting improvements in their environment are simply offloading their polluting enterprises to nearby poorer regions. In these regions, local officials remain consumed with economic development at all costs and are willing to contravene environmental protection laws to protect polluting enterprises. Local environmental officials, beholden to local governments for their wages, office space, and benefits, are relatively powerless. SEPA periodically sends inspection teams to crackdown on violators. Results from these inspections indicate that about 1/3 of Chinese enterprises use their pollution control equipment effectively, about 1/3 have the equipment but do not use it because they perceive it as an unnecessary expense, and the remaining third have never put into place the mandated pollution control technology. Environmental officials also acknowledge that many enterprises are shut down for the duration of the inspection and reopened when the inspection is over.

The third prong of the Chinese government's strategy is to engage the international community in its environmental protection effort. China has been extraordinarily successful in attracting foreign assistance to tackle its environmental challenges. China has long been the largest recipient of environmental assistance from the World Bank, the Global Environmental Facility, and the Asian Development Bank, although that may be changing as China no longer qualifies for the lowest interest loans from the World Bank. International Non-governmental Organizations as wide ranging as the Natural Resources Defense Council, The Nature Conservancy, World Wildlife Fund, and Greenpeace have poured financial and human capital into China in an effort to raise the capacity of the country's environmental officials and help China rethink its development strategy.

Multinationals have also played a significant role in China's environmental development. Certainly some multinationals have taken advantage of China's relatively lax environmental enforcement, and mainland officials have openly criticized South Korea, Taiwan and even China's own Special Administrative Region Hong Kong for exporting their most polluting industries to China. Yet many other multinationals are making a substantial contribution to China's environmental protection effort in a variety of ways.

- Royal Dutch Shell, for example, dramatically raised the environmental bar by hiring ERM to conduct an environmental impact assessment for a joint venture project with Petrochina to bring natural gas from Xinjiang to Shanghai (a joint venture Shell never realized). Shell's EIA forced the pipeline to be rerouted in several places to avoid endangering rare species. Shell has also become renowned for its support of environmental NGO activity.
- Johnson and Johnson supports tree planting efforts in Western China and offers an annual environmental leadership award.
- Other companies work closely with Chinese environmental officials to try to raise standards or ensure their enforcement in an effort to make their products competitive in the Chinese or international market.

The South Africa-based Manganese Metal Company has been working with Chinese officials and businesses, conducting environmental impact assessments and hosting international symposia, to try to transform the highly toxic process by which China manufactures manganese metal. Their efforts helped spark new activity by the Chinese NGO Green Volunteers of Chongqing to undertake field work on the local manganese metal producers' impacts on the environment and nearby residents' public health.

Corning is similarly working with the State Environmental Protection Administration officials to help meet NOX standards throughout China.

The most dramatic transformation in China's environmental protection effort over the past decade, however, has certainly been the development of the environmental non-governmental sector. Since 1994 and the founding of the first environmental NGO in China, *Friends of Nature*, there has been a spectacular increase in both the number of environmental NGOs in China and in the range of activities they undertake. Environmental NGOs have evolved from organizations devoted almost exclusively to environmental education and biodiversity protection to those willing to

criticize the government openly on issues such as misappropriation of funds or to launch campaigns to prevent the construction of large scale dams. In one recent such campaign, Chinese NGOs garnered over 15,000 signatures on the internet to prevent a dam from being constructed on the Nu River in Southwestern China. Non-governmental organizations frequently use the media and legal system to enhance their efforts.

China's environmental movement is also at the forefront of political reform. Many Chinese environmental NGO leaders founded their NGOs with a desire to advance democracy in China; still others have come to believe in the necessity of democracy for effective environmental protection. Many of them have strong training in journalism or the law which affords them important institutional mechanisms for advancing environmental protection. Through their activism, these NGOs have become a significant force for greater political openness, transparency and accountability in China's political system.

China's NGOs have many allies in their effort to push the Chinese government to pay greater attention to environmental concerns. They have forged strong linkages with their international counterparts. For example, Chinese NGOs participate in workshops organized by the International Rivers Network, the INGO that spearheaded the international campaign against the Three Gorges Dam. And within China, the development of a cadre of environmental lawyers and the gradual strengthening of the rule of law have allowed for NGOs to use the legal system and citizen-based lawsuits to pursue their goals.

For the most part, the Chinese government welcomes and even actively seeks the participation of China's citizens in environmental protection, as long as it does not take on an obviously political tone. Still, Chinese NGOs are carefully monitored: they are required to have a government sponsor, report on all their activities, list their sources of funding, and are not permitted to have branches in additional cities. Some NGOs avoid these strictures by registering as businesses or simply not registering at all.

#### IV. AMERICA'S POLICY INTERESTS AND RESPONSES

For the U.S., China's environmental problems present both a challenge and an opportunity. China's environmental practices, like those of the United States, have a profound impact on its neighbors and the rest of the world. China is one of the world's largest contributors to ozone depletion, global climate change, and biodiversity loss. Chinese logging companies are also becoming a significant player in the illegal trade in tropical timber.

How China responds to its environmental challenges, moreover, has critical implications beyond those for the global environment. China's economic, social and political future is being shaped by the balance it is striking between environment and development. For the United States to anticipate the China of 2020, it must understand China and the environment.

Engaging in China's development issues therefore offers the United States the opportunity to advance not only environmental protection but also core political priorities in the U.S.-China relationship: the advancement of human rights and democracy, the development of a more transparent legal system, and greater access to the Chinese market for U.S. goods and services.

There are several steps that could be taken to raise the profile of the United States in helping to shape China's future environmental, political, and economic development:

- Lift the ban on United States Agency for International Development involvement in China. Although USAID indirectly funds some rule of law and public health programs in China, with its broad emphasis on governance, public health, rule of law, and poverty alleviation, it could be far more effective in addressing China's most pressing needs and the United States' most direct interests. USAID also has developed a highly effective model for promoting energy efficiency and conservation in India—supporting zero emission automobiles, for example—that could be replicated in China.
- Fund the Clean Energy Technology Export Initiative, which is a multi-year technology partnership between the government and the private sector to facilitate the export of clean energy technologies. A key advantage of this program is that it can marshal interagency coordination and provide a clearinghouse for U.S. companies with clean technology. This program has been successful, but its inadequate funding limits effectiveness in seeding key market opportunities for U.S. companies that have emissions technologies.

- Remove restrictions on the Overseas Private Investment Corporation and the U.S. Asia Environmental Partnership, both of which would provide assistance to U.S. businesses eager to gain a foothold in China's environmental technologies market. This market is currently dominated by Japan and the European Union.
- Support increased funding for the Trade Development Agency. The overall budget for the TDA is quite small compared to the demand for TDA's programs. The budget should be increased and there should be funds targeted exclusively for China.
- Enhance existing efforts to promote the rule of law and environmental Governance. The State Department's Democracy, Human Rights and Rule of Law program has embraced the environment as one of its primary targets for assistance in China. And the U.S. Embassy in Beijing has thrown its (limited) economic weight behind supporting environmental governance in China. Coupled with work by organizations such as the American Bar Association and the Woodrow Wilson Center, the United States has established an important foothold in this area. Given the long term reform benefits of these nascent efforts, however, significantly greater resources—through training, education, and exchange—should be provided to strengthen both the legal and NGO sectors in China. Here, too, the opportunities for public-private partnership are significant.

Mr. LEACH. Thank you, Dr. Economy. Mr. Sherpa?

**STATEMENT OF MINGMA SHERPA, DIRECTOR OF ASIA  
PROGRAMS, WORLD WILDLIFE FUND**

Mr. SHERPA. Well, thank you. Good afternoon, Mr. Chairman and Members of the Committee. Thank you for the opportunity to testify today on behalf of World Wildlife Fund on the environmental challenges in Asia. World Wildlife Fund, known globally by its panda logo, is the largest, privately-supported, conservation organization, with 1.2 million members in the United States and 5 million globally.

My name is Mingma Norbu Sherpa. I am the Director of Conservation for Asia at World Wildlife Fund. We are here today because we share the Committee's concern about the environmental challenges that are faced by Asia. My own experiences and the history of my birthplace may provide some insights into the challenges some of the Asian nations are facing today.

I was born and raised in Khunde, a small mountain village set on the route to Mt. Everest in Nepal. Like other mountain villagers, my community had very strong bonds with the natural environment. It was a simple and peaceful lifestyle, yes. At the same time, the people in my place did not have access to basic amenities, such as health care, running water, roads, or education. The village was quite poor and completely dependent on seasonal agriculture and the surrounding forests for their livelihoods. Most families faced a great deal of hardship, and my own family lost two of my older sisters due to undiagnosed childhood diseases.

It was only when I had the opportunity to meet one of the greatest people, extraordinary people, of this century, Sir Edmund Hillary, the person who climbed Mt. Everest. I was one of the first and the fortunate ones to graduate from the schools that Sir Hillary established for Nepalese children. With Sir Hillary's foundation's support, I was able to pursue higher studies; later on take positions, such as the park manager of Everest National Park, the Annapurna project, and now the director of the Himalayas program at World Wildlife Fund. My grandfather, who was a sherpa guide



for Sir Edmund Hillary's expedition, of course, did not get the same kind of opportunity that I did.

Mr. Chairman, I want to focus my testimony on the region of Asia that I know best, and that is the eastern Himalayas. The eastern Himalayas are a most important and amazing landscape, characterized by pristine, temperate, moist forests in the south and towering, snow-covered peaks in the north, with rich alpine meadows and rugged mountain terrains of Bhutan, Nepal, northeast India, parts of China, and Myanmar. The eastern Himalayas also are very globally important, being considered as a global biodiversity hot spot, a Global 200 eco-region, and centers for plant diversity.

Mr. Chairman, despite its biodiversity richness, species, such as the tiger, the Asia one-horned rhinos, and the Asian elephant, are critically endangered due to the severe poaching and illegal trade in wildlife parts and habitat fragmentation.

Heavy dependence on forests has caused massive deforestation in the Himalayan slopes, causing soil erosion and degradation of the mountain environment. For example, this past year alone, the floods have caused 740 deaths in the country of Bangladesh, and 10 million of the country's 130 million people are homeless.

Mr. Chairman, WWF has been working in the Himalayas since the 1970s, providing technical and financial assistance for the protection of nature and habitats, for example, in Nepal, in India's Terai Arc, where we and our conservation partners are restoring and maintaining 5 million hectares of degraded forest, connecting 11 protected areas through community and collaborative forestry plantations. The connectivity between protected areas allows species, such as the tigers and the Asian elephants, to disperse and roam freely, thereby enabling us to protect an entire biological system. Ecological systems are vital for protecting the watershed for irrigating and drinking water as well as wildlife habitat. In the corridors, we work not only to protect wildlife but also to improve the well-being of the local people.

Mr. Chairman, we strongly believe that the substance of a conservation project depends on a stable, transparent, and accountable government, with good leadership, sound conservation policies, and sustainable and equitable economic development. We also firmly believe that a successful outcome is determined by support from bilateral and multilateral institutions, such as the USAID, the Global Environmental Facility, the World Bank; and private donors, such as the MacArthur Foundation, to name a few. Continued biodiversity funding from such organizations is critical to guarantee that conservation programs thrive in this important region, ensuring that wildlife and their habitat remain protected, ecological systems are maintained, and the needs of communities are met in order to encourage them to use natural resources efficiently in a sustainable manner.

Lastly, I would like to invite the Members of the Committee to visit the eastern Himalayas and see for themselves the great opportunities for conservation and sustainable development of this region that is of critical importance to global conservation efforts. I will be very pleased to be your "Sherpa," or your guide, on such a trip. Thank you, Mr. Chairman.

[The prepared statement of Mr. Sherpa follows:]

PREPARED STATEMENT OF MINGMA SHERPA, DIRECTOR OF ASIA PROGRAMS, WORLD WILDLIFE FUND

Mr. Chairman and Members of the Committee, thank you for the opportunity to testify today on behalf of World Wildlife Fund on environmental challenges in Asia. WWF, known globally by its panda logo, is committed to protecting the rich diversity of life on Earth. As the largest privately supported international conservation organization in the world with more than 1.2 million members in the United States and 5 million globally, WWF is a strong advocate of long-term conservation and has sponsored a wide range of conservation projects in more than 100 countries since 1961.

My name is Mingma Norbu Sherpa. I am the Director of Conservation for Asia at World Wildlife Fund (WWF). We are here today because we share the committee members' concerns about environmental challenges faced by Asian countries. I hope that I will be able to provide some insight from my experience working in the region during the past 25 years.

I want to focus my testimony today on the region of Asia I know best—the Eastern Himalaya.

I was born and raised in a small mountain village called Khunde at the base of Mt. Everest in Nepal. When I was a child, I had the opportunity to meet one of the most remarkable and extraordinary men of this century. His name is Sir Edmund Hillary. I was one of the first students to graduate from the schools established by Sir Hillary for Nepalese children. I was also able to pursue a graduate degree in Natural Resource Management with assistance from the Hillary Foundation.

I was a Fulbright Scholar in the US, served as the first Sherpa Park Manager of the Sagarmatha (Everest) National Park, Director of the Annapurna Conservation Area Project (ACAP), Director of WWF's Himalayan Programs in the U.S., the Country Representative for WWF in Nepal and Bhutan, and for the past six years have been the WWF's Director of Conservation for Asia.

In my current role, I am responsible for overseeing all aspects of the WWF network's conservation programs in Bhutan and Nepal and provide technical assistance for our programs in India and the Tibet Autonomous Region of China. In addition, I provide technical advice to WWF's broader engagement in some 20 countries in the Asia Pacific region.

Someone once said "In no other place else on Earth can one gaze on tigers or greater one-horned rhinoceros in lowland grasslands against a towering backdrop of snow-covered 25,000 feet-high mountain peaks." Truer words have never been spoken. The Eastern Himalaya, covering Nepal, Bhutan and the northeast Indian states of Assam, Arunachal Pradesh, West Bengal and Sikkim and including south east Tibet (China) and northern Myanmar, is a most important and amazing landscape. It is characterized by pristine temperate moist forests in the south, towering snow-covered peaks in the north, rich alpine meadows, and extensive grasslands in the Tibetan plateau. This plateau is the last place in Asia where extensive migration of wildlife can still take place. Nepal's lowland savanna grasslands are the tallest in the world, growing as tall as 20 feet. The great variety of landscapes provide critical and important habitats for numerous species of plants and animals.

By any measure of biodiversity, the Eastern Himalayan region stands out as being globally important. It has been included in the 25 biodiversity hotspots on Earth (Myers *et al.* 2000), includes several Global 200 ecoregions (Olson and Dinerstein 1998), two Endemic Bird Areas (Stattersfield *et al.* 1998), and several centers for plant diversity (WWF/IUCN 1995). The geological history, bio-geographic patterns and climatic variations are some of the reasons why the Eastern Himalaya is so exceptionally rich in biodiversity.

And the Eastern Himalaya is also home to approximately 300 million people. For centuries, people from Nepal to Bhutan to Northeast India, have and still do depend directly upon the areas natural resources for their livelihood. Yet throughout the region, a cycle of resource overexploitation is impoverishing and threatening already vulnerable communities. Overexploitation of forests for timber, charcoal, and firewood production, as well as water diversion, intensive grazing, agricultural expansion, have degraded the environment in many areas to a point that local people can no longer meet subsistence needs. The resulting poverty in many cases is characterized and perpetuated by large family sizes, high population growth, lack of access to adequate healthcare, limited economic opportunities, and insufficient access to educational facilities. These factors constrain local communities and give them few alternatives to unsustainable harvesting of natural resources. The ensuing resource degradation brings the cycle full circle and perpetuates poverty as local families and

communities have less and less upon which to live. This cycle of poverty also exacerbates situations of conflict and undermines democracy, in some cases, weakening the legal and governance process.

Therefore inadequate socioeconomic conditions combined with governance issues have led to political instability amongst large sections of the population across the Himalaya. This is apparent with the Maoist insurgency in Nepal, ongoing strife in Assam and other parts of northeastern India. To reverse these trends, settlements must develop mechanisms of sustainability with respect not only to health, educational, economic, and environmental wellbeing but also good governance, community capacity building and further empowerment of civil society.

Apart from being an important habitat for plants and animals and home to millions of people, the Eastern Himalaya and its rich forests and grasslands is an important watershed serving two of the world's great rivers—the Ganges and Brahmaputra. The two rivers originate in the Himalaya and flow through some of the most densely populated areas in Asia before entering the Bay of Bengal. The consequences of soil erosion and degradation of the mountain environment, in one of the world's largest watersheds, have manifested with devastating consequences from the Himalayan slopes to the giant delta area that is Bangladesh—where floods, this past year alone, have been the cause of 740 deaths and for making homeless 10 million of the country's 130 million people.

It is well documented that erosion, landslides, landslips, and soil subsidence are a very common phenomena in the Eastern Himalaya particularly in the outer Himalaya and in the Bhabar and Terai areas. Marginal agriculture, non-terraced cultivation in the steeper slopes, shifting cultivation with low fallow period, fire and grazing contribute to increasing run-off leading to in-situ erosion and flood in the piedmont areas of the region.

In addition, global warming is becoming a major threat to the region causing glaciers to retreat and thin considerably in the past 30 years with excessive amounts of water accumulating in the glacial lakes. These glaciers provide freshwater for a large expanse of the Asian subcontinent as well as more than a billion people and the agriculture that supports them. Studies undertaken by the United Nations Environment Program (UNEP) in 1999–2002 indicate that 20 glacial lakes in Bhutan and 24 lakes in Nepal have become potentially dangerous because of global warming. Thousands of human lives, livestock, agricultural land and infrastructures could be compromised as a result of a sudden, unexpected outburst. Retreating glaciers affects many river and water systems threatening drinking water sources, river ecosystems and wildlife. The problem is so compounded that it is essential to look at it on watershed basis prioritizing the watershed in terms of their intensity of erosion.

WWF has been working in the region since the 1970s providing technical and financial assistance for the protection of habitats and conservation of natural resources. We know that despite the threats, the Eastern Himalayan ecoregions can still be conserved and protected. Conservation accomplishments in Bhutan and Nepal have shown us that with sound conservation policies and a determined government, natural resources and wildlife can be saved, and poverty reduced.

WWF has a vision for the Eastern Himalaya, a vision that is shared by the governments and people of the region, a vision centered on four main landscapes that represent the rich and distinct biodiversity of the Eastern Himalaya the Terai Arc Landscape between Nepal and India, Bhutan Biodiversity Conservation Complex in Bhutan, Kanchenjunga Landscape in Nepal, India and China and the North Bank Landscape in northeast India.

Each landscape is a priority with significant conservation and development impacts at the local, national, transnational and global levels. All of WWF's projects in these landscapes address conservation and economic development, and are focused on wildlife protection, natural resource management, poverty alleviation, sustainable livelihoods, capacity building, conservation leadership, empowerment of local communities and groups, especially women, and partnerships with local and national governments, international and multilateral organizations, NGOs and local community groups.

For example, in Bhutan, we are working with government agencies, national NGOs and local communities to establish 1,500 sq km of natural biological corridors connecting the kingdom's nine protected areas. The goal is to maintain 60 percent of Bhutan's forest cover that provide much needed revenue from hydro-electricity and ecotourism—two of the kingdom's largest sources of foreign exchange. The Bhutan biological corridors linking the protected areas will allow the free movement of species such as the Royal Bengal Tiger (*Panthera tigris*) from one protected area to another, and provide a critical space for them to roam, thereby enabling us to protect an entire biological system. The protected corridors are a perfect example of a

sustainable and effective approach that increases the probability that endangered species such as the tiger, greater one-horned rhinoceros and snow leopards will survive and thrive. In the corridors we work not only to protect wildlife but also to improve the well being of people.

In the foothills of the Himalaya along the Nepal and India border, WWF and its partners are restoring and maintaining corridors linking 11 protected areas through community and collaborative forestry, plantations, and sustainable land use practices that satisfy both conservation needs and the needs of the local communities. The ambitious project is called Terai Arc Landscape.

Less than half a century ago, the Terai (*lowlands*) was a necklace of pristine forests and tall grasslands that supported a spectacular assemblage of Asia's wildlife species, including the tiger (*Panthera tigris*), the greater one-horned rhinoceros (*Rhinoceros unicornis*) and the Asian elephant (*Elephas maximus*). Today, the natural forests and habitats are like the scattered beads of a broken necklace, isolated patches strewn across a human-dominated landscape. The wildlife and other biodiversity are confined to small patches of habitat where they face an uncertain future because these refuges are too small or inadequate to support the species populations and ecological interactions that maintain them.

Moreover, not only the wildlife and natural biodiversity, but also the livelihoods of the local people are at risk. Successful efforts to control malaria and other debilitating diseases since the 1960's resulted in a large influx of people to the Terai from the north; drawn to it by the high agricultural productivity of the area. Subsequently, large-scale land clearing for agriculture, settlements, and timber by these settlers led to soil erosion and low water tables that has affected the agricultural viability of the Terai. The Terai Arc is also the rice bowl of Nepal producing 60 percent of rice in Nepal. Unless conservation actions are immediately undertaken to restore and reverse this trend of ecological degradation, the economy of this productive region, the livelihoods of the millions of people (6.7m) now living in the Terai, as well as the rich biodiversity will be in jeopardy. The Terai Arc Landscape (TAL) program seeks to undertake conservation actions that fully incorporate the interests of people as well as wildlife.

In the Terai, WWF works closely with local communities in integrating conservation and development to greatly improve the quality of lives of local communities while achieving a sustainable balance between their needs and the needs of the natural ecosystems that comprise the Eastern Himalaya. Central to this effort is the management approach of Nepal to community management of natural resources by empowering local communities to manage government-owned forests. This provides communities with opportunities and incentives that lead to the sustainable, creative and varied uses of land and resources, enabling the communities to enjoy payoffs that surpass previous subsistence levels. This leads not only to stewardship but also to tolerance towards wildlife, which is critical for the survival of tigers, rhinos, and elephants.

Bagmara community just outside the Royal Chitwan National Park in Nepal is another good test case where forest user groups have successfully collected fodder, thatch grass, firewood and timber from a community plantation site at different times. Because the basic fabric of forest was maintained, wildlife from the park eventually dispersed into the community forestry plantation sites. The local communities were quick to profit from this as more and more tourists started coming into the plantations to see the animals. Projects that provide income incentives encourage local communities to take care of community forests and to prevent poachers from killing wildlife. The income raised from the tourists is used for funding community projects like building schools and healthcare centers. This successful community initiative has been replicated in many areas of Nepal and India. WWF supports such *Successful Community Initiatives* to take on the underlying issues that plague the geographically isolated and lacking communities, most of whom do not have access to even the most basic of healthcare, education, and livelihood avenues.

WWF strongly believes that the success and effectiveness of a conservation project depends on a stable, transparent and accountable government with good leadership, sound conservation policies, and sustainable and equitable economic development involving equal participation of all groups in a community in the decision-making process.

WWF also firmly believes that chances for a successful outcome are greatly improved with the technical and financial support from bilateral and multilateral institutions such as USAID, the World Bank, International Finance Corporation, United Nations Development Fund, the Global Environment Facility, Asian Development Bank, and private donors such the MacArthur Foundation, Johnson and Johnson, and the Bill and Melinda Gates Foundation. Continued biodiversity funding from these institutions is critical to guarantee that conservation programs thrive

in this important region, ensuring that wildlife and their habitat remain protected, ecological systems are maintained and the needs of communities are met in order to encourage them to use natural resources efficiently in a sustainable manner.

Lastly, I would like to invite the members of this committee to visit the Eastern Himalaya and see for themselves the opportunities for conservation and sustainable development of this region that is of critical importance to global conservation efforts. I would be pleased to act as your guide or should I say your 'Sherpa' on such a visit.

Thank you Mr. Chairman. I am pleased to answer any questions you may have.

Mr. LEACH. Thank you, Mr. Sherpa. Mr. Flavin?

**STATEMENT OF CHRISTOPHER FLAVIN, PRESIDENT,  
WORLDWATCH INSTITUTE**

Mr. FLAVIN. Thank you very much, Mr. Chairman. It is a pleasure to be here with you today and to have a chance to discuss this important topic. I am going to accept your suggestion that I summarize or focus my remarks, and I plan to focus on the strategic significance of what is happening in Asia today. And, particularly, let me focus on China because I think that if you look at the sheer numbers in this part of the world—and I am talking about the numbers of people, 1.3 billion in China alone, something on the order of 3 billion in the region as a whole—it is pretty clear that even if you made the remarkable leap to meeting the latest country environmental standards in this part of the world, you would still have an enormous problem, assuming that the region proceeds as rapidly with economic development as is currently the case, which I think is quite likely to proceed.

In essence, I think the challenge is this: Even if you met modern standards throughout the world, but you have economic development where you have China and the other countries in the region moving to our level of amenities and services, the total burden in terms of both emissions and resource requirements is, quite literally, beyond either the physical resources that are available to us on this earth and beyond—and really this is more important—the pollution-absorbing capacity of the earth's natural systems.

And so what I think the rapid development of China and the rest of Asia suggests to us is really the sort of structural economic importance of dealing with environmental problems in a much more fundamental way. Yes, we have to have end-of-the-pipe solutions. Yes, we have to move as quickly as possible throughout the world toward the kind of standards that are increasingly applied in the United States and Europe, but I think, ultimately, we are going to have to do far more than that.

It is notable, when you see the huge impact that growth in China just in the last 2 years has had on world commodity prices, from steel to cement to oil—oil imports have gone from roughly zero in the mid-1990s to 3 million barrels a day in China, already making it the number three importer of oil in the world, and, of course, all of the emissions-related numbers are rising along with that. This is all happening at a time when China, for example, still uses just 1½ barrels of oil per person each year compared to 26 barrels per person in the United States.

So one can envision, for example, just as a thought exercise, if China were to one day use as much oil per person as we do, you would have to literally double world oil production just to meet

China's needs, and I do not know that there is a geologist on the planet who thinks we are ever going to see a doubling in world oil production.

The same thing is true when it comes to emissions of carbon dioxide. We are never going to achieve a stable climate if China even simply replicates the levels of energy efficiency but consequent energy services, meeting transportation needs, home heating needs, et cetera, in the way that we are today.

I would argue that there is a real sort of synergy, an inextricable bond, if you will, between the United States and China when it comes to the world's environmental future. Because we are, indeed, already, and certainly will be throughout most of the 21st century, the world's environmental as well as economic superpowers, with disproportionate impact on the world, both potentially for good and for ill. And it seems to me, therefore, that we have an immense interest here in the United States in getting beyond the sort of competitive finger-pointing and burden-displacing approach to dealing with environmental issues that has, unfortunately, characterized a number of recent international environmental negotiations that have involved the United States and China.

Far better, I believe, to look at new technologies, new policies, new businesses and investments as strategic opportunities that the two countries should jointly build upon together rather than thinking of environmental improvement as something that you should do as little of as possible at home and encourage as much as possible to be done by your neighbor. That is clearly not going to be a productive course.

And while that may seem like an almost naively, optimistic thing to hope for, I think it is notable that if you look at a number of the trends in China—even given all of the very negative trends and the failure to enforce policies that have already been noted by the other witnesses—I think you can also see signs of China's leadership, and, in fact, many of its young people are now taking environmental issues very, very seriously.

I would quote from a recent statement of China's Council for International Cooperation on Environment and Development, which said:

“China's remarkably low per capita consumption pattern is an opportunity to avoid the mistakes of many other countries that have developed very high levels of material and energy consumption. Moving towards more sustainable consumption patterns could lead to more competitive domestic enterprises and greater access to international markets.”

If such a vision could be realized, we would be well on the way to creating a better world not only for China but really for the world as a whole, and, indeed, there are already some concrete examples where China is moving in this direction.

The Chinese leadership has taken energy efficiency very seriously, has pursued a whole range of energy efficiency policies, which I think you could stack up rather well against actions of the U.S. Congress over the last decade in terms of things like appliance efficiency standards, automobile efficiency standards, and, indeed, just one example of the concrete consequences of that: China al-

ready dominates the world market for compact fluorescent light bulbs, a technology that was pioneered in the United States and Europe but which China is the leading producer and consumer of today.

In renewable energy, China is already the world leader, both in small hydro power and in solar hot water systems which are now being installed across thousands of apartment buildings in China. China had 75 percent of the world market in the solar collector area last year.

This is, of course, just the beginning. One could go on to a much longer list where China is not doing nearly as much as it needs to, but I think the strategic recognition is beginning to come into place. And we are also, I think, seeing, ironically, that despite the many problems that are a consequence of the kind of government that China has, one of the advantages that it has been able to tap into when it comes to environmental issues of having a relatively centralized system, is that it has been able to turn very quickly, sometimes directly against the interests of specific industries or specific economic interests, and develop very strong, new policies.

But I do think that if we are able to build a stronger cooperative relationship with the United States, they are always looking to where we are headed with technologies, and I think that it is actually a benefit to all of us that if we point in a particular direction, the Chinese are likely to say, "We want to get there, and we want to get there first." Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Flavin follows:]

PREPARED STATEMENT OF CHRISTOPHER FLAVIN, PRESIDENT, WORLDWATCH  
INSTITUTE

Mr. Chairman, thank you for the opportunity to appear before you today on the important subject of Asia's environmental challenges. During the course of this century, Asia in general and China in particular will increasingly stand at the center of the global economy and environment. Rapid economic growth in a region with more than 3 billion inhabitants will inevitably shape the future of the human and natural worlds. The choices made in the coming years will have enormous consequences for the quality of life in Asia and the world.

I. CHINA'S GLOBAL IMPACT

China has become central to the global challenge of environmentally sustainable economic development. Rapid economic growth is propelling many of China's 1.3 billion people into the consumer society, increasing the pressures on its own resources as well as those of other nations. Due to its population size, growing economic importance, and wide cultural influence, China's decisions will have a major bearing on the overall health of humanity and the planet.

China is roughly the same geographic size as the United States, but has four and a half times as many people. China has 21 percent of the world's population but just 7 percent of the world's fresh water and cropland, 3 percent of its forests, and 2 percent of its oil. As the output of China's economy has more than doubled in the last decade, it has joined the United States as the world's second environmental superpower. It is now the second largest consumer of oil and water, and the second largest producer of major pollutants such as sulfur and carbon dioxide. China's booming economy is projected to consume a rapidly growing share of the world's resources in the coming decades. Food and timber imports are also growing rapidly, placing pressures on fragile landscapes as distant as the Brazilian Amazon.

In recent years, China's oil consumption has begun to soar far above its domestic production of just over 3 million barrels per day. The difference has been made up by soaring imports, which have gone from zero in the mid-1990s to over 3 million barrels per day this year, making it the world's third largest oil importer, trailing only the United States and Japan.

These figures are almost certain to rise, as China becomes a major force in the world oil market, with growing dependence on the Persian Gulf. China now consumes just 1.5 barrels of oil per person per year, compared with 26 million barrels per person in the United States. But China is now building vast numbers of houses, factories, roads, and motor vehicles, which are driving up the demand for energy, particularly oil, which is also being consumed in diesel generators being deployed by factories whose power needs are not longer being met by an overstrained national power grid.

The evolution of China's transportation system is a case in point. Long known as a bicycle dependent country where private automobiles were a rarity as recently as the early 1980s, China had 10 million cars by early 2002, added 4 million in 2002, and another 6 million in 2003. By 2015, it is projected that China will have 150 million cars—about the same number as the U.S. in 2000. China's cars will create new industries and jobs, but will come at a cost. Those vehicles will consume not only oil, but valuable agricultural land, as road networks are expanded. The question is not whether China should expand its use of automobiles, but what the right balance for its transportation systems should be. Such questions are more easily addressed today than after additional transportation infrastructure is built.

## II. THE ENVIRONMENTAL BURDENS OF CHINA'S DEVELOPMENT

If one were to take the entire population of the United States, move it east of the Mississippi River, and multiply it by four, the U.S. would have a population density equivalent to that found in the eastern provinces of China where the vast bulk of the population lives. As this vast population acquires the goods and services that are typical in industrial countries today, the consequences are proving enormous, exacerbated by the country's heavy dependence on coal.

Coal provides 70 percent of China's energy, a level of dependence that can only be compared with Great Britain at the height of the industrial revolution. (The U.S. at the time relied on wood fuel, as well as coal.) In China, coal is not only used for power generation and steel production as it is in the U.S., it is also burned in millions of homes and factories to meet needs as simple as heating food. Efforts to replace coal with gas and oil are proceeding in cities such as Beijing, but alternative fuels are simply not available or affordable in vast parts of the country.

The principal atmospheric pollution problems in Northeast Asia relate to climate change, stratospheric ozone depletion, acid deposition (acid rain), and urban air pollution. All of these problems except ozone depletion are significantly related to energy use, primarily fossil fuel combustion. Of these problems, acid deposition is at present of greatest concern in the region as a source of regional-scale ecological degradation, especially cross-border acid deposition generated by the emissions of acidic pollutants from China's coal-fired plants.

China is the center of coal-related energy use problems in Northeast Asia, and such problems will plague it for many years. Local air pollution in China due to power plants and industrial facilities has reached crisis proportions in most large urban areas. Among all energy options, coal-fired power plants are the largest emitter of particulate matter (PM), sulfur oxides (SO<sub>x</sub>), and the greenhouse gas carbon dioxide (CO<sub>2</sub>). They are also a major emitter of nitrogen oxides (NO<sub>x</sub>). About 90% of total PM, SO<sub>x</sub>, and NO<sub>x</sub> emissions in China are due to coal burning, including power generation and a significant fraction from small scale, residential use for cooking and heating. Within the next two to three decades, as regional sulfur dioxide emissions increase by as much as a factor of three, sulfur deposition levels are anticipated to reach levels that are higher than those observed in Europe and North America during the 1970s and 1980s, and in some cases may exceed those once observed in the most polluted areas in eastern Europe. Ambient levels of sulfur dioxide would exceed World Health Organization (WHO) health guidelines not only in cities, but also in many rural regions. This, in turn, has worrisome security implications. Other pollutants are likely to follow patterns similar to sulfur dioxide.

Sulfur dioxide and soot caused by coal combustion are two major air pollutants, resulting in the formation of acid rain, which now falls on about 30% of China's total land area. Industrial boilers and furnaces consume almost half of China's coal and are the largest single point sources of urban air pollution. The health consequences of China's coal consumption are even more daunting. The World Health Organization has concluded that six of the world's ten most polluted cities are in China, and the government environmental agency estimates that that breathing the air in those cities is equivalent to smoking two packs of cigarettes per day.



## III. CHINA'S CHOICE

The magnitude of China's environmental problems is unprecedented, and is complicated by the fact that its governmental structure is in gradual transition from the centralized, one-party structure that dominated the second half of the 20th century. Local and state governments are playing a growing role, and non-governmental environmental organizations, which were only recently permitted, now number over 2,000, and are beginning to drive the policy reform process. Still, it has been noted that China's government environmental regulator has one-hundredth the number of staff members of the U.S. E.P.A., and many of the recent environmental laws that look strong on paper are clearly not being enforced.

Despite this still unsatisfactory record, there is reason for cautious optimism that China is beginning to recognize that environmental sustainability is one of the keys to the country's successful economic development, and that China cannot afford to continue to lag decades behind the environmental technologies and policies now being pursued in industrial nations. The China Council for International Cooperation on Environment and Development said recently, "China's remarkably low per capita consumption pattern is an opportunity to avoid the mistakes of many other countries that have developed very high levels of material and energy consumption. Moving towards more sustainable consumption patterns could lead to more competitive domestic enterprises and greater access to international markets."

This kind of leapfrog strategy is what is needed for China to succeed in the 21st century. And because of the size of the Chinese economy, a decisive move towards new sustainable technologies and industries could have a global impact—lowering costs, and encouraging other nations to join the new economic bandwagon. Examples of recent, encouraging developments include:

1. Energy efficiency is now being widely promoted and deployed, including via new government-mandated efficiency standards for a variety of devices, including home appliances, and has proposed new standards for motor vehicles that would exceed current U.S. standards. One result of the commitment to efficiency is that China has quickly leap-frogged over Europe and the United States to become the world's number one producer and user of compact fluorescent light bulbs.
2. China has become the world leader in two important renewable energy technologies: small hydropower and solar water heating. In solar hot water, China is installing solar collectors on thousands of apartment buildings across the country, and had a remarkable 75 % of the world market for the devices in 2003. At an international conference in Germany in June 2004, China announced an ambitious new commitment to generate 10 percent of its power using renewable energy by 2010. A new renewable energy law is currently being prepared, which is intended to open the way to widespread development of wind power and other options.

These recent achievements hint at China's potential to become a world leader not only in total resource use and emissions, but in showing the way to a more sustainable future. China's prowess in low-cost manufacturing, and its demonstrated ability to change directions quickly, could allow it to move quickly to the forefront in sustainable production and consumption.

China's emergence as a large-scale economic power demonstrates clearly that current patterns of resource use and pollution relied on by the roughly 1 billion people who live in industrial nations, cannot possibly work for an economically advanced world with a population that will exceed 8 billion by the middle of the next century. China and the United States, which will together be the economic and environmental superpowers of the current century, have a strong common interest in developing the new technologies, consumption patterns, and policies, that will make a prosperous and sustainable future possible.

Mr. LEACH. Well, thank you very much, Mr. Flavin. It is always good to have a Williams College graduate that is not an art historian. You mentioned crystals. As you know, Dan Flavin uses crystals as a minimalist artwork, and you have lit up the Committee, as he might have, and we have had a sherpa guide, and we appreciate that, and I think it is no accident sherpa has become the name that policymakers in the economic realm give to their top assistants, who usually know more about what is happening than they do. As far as Dr. Economy, you have embellished your name,

or maybe profession. I do not know which it is. And, Ms. Bell, crystal like a bell.

Anyway, let me go to a query here. As you know, in recent years, particularly since this cold war has come to the end, a lot of academic thought has gone into how you define what are the realms of security, and one of the links that people have suggested is environmental change. Do you have any view on this subject? Do you think that there is worthwhile research out there tying environmental issues to national security concerns, or is this an exaggerated linkage? Please, go ahead, Dr. Economy.

Ms. ECONOMY. Well, I think this is an area that actually has received an enormous amount of attention already. The University of Toronto has done extensive studies. Your own Woodrow Wilson Center here in Washington, DC, has a very large program on environmental change and security that is underway.

So I think that, yes, there is room for more research, but certainly, I guess, in the sense that, for example, water scarcity, as I mentioned, can produce violent protests internally, so it becomes a security challenge domestically to China. We see cases where, for example, on the Mekong River, what China is doing in terms of its building of dams is of great concern to Vietnam, to Laos, and their food security and devastating their rice production. So I think that there is actually a reasonable case to be made between environmental change and issues of security.

Mr. LEACH. Would the panel agree? Would you agree, Dr. Bell?

Ms. BELL. I would agree with that completely. I think the issue that is most likely to cause this kind of disruption, in my view, is water scarcity, as people actually face the reality of their inability to get the kind of water they need. But I also think that very often, people in places like China do not often know enough to connect, for example, the illness they are experiencing, or the fact that their lives are being shortened, with the pollution. There is a big need there for information to make these connections so that people can start to do this. Because frankly, I think, as you understood from my testimony, that much of this motivation to act on environmental threats has to come from the people to the Government. There has to be some pressure to really make these laws work and to really address the environment, and once people start making these connections, I think that pressure is more likely to build.

Mr. FLAVIN. I would echo those comments, Mr. Chairman, and specifically with reference to China. I think many analysts would agree that one of the biggest security problems that China has is the enormous flow of people from rural areas into the cities now, which is creating tremendous social tensions and clearly has the potential to undermine social and political cohesion at some point. The kind of problems, particularly in the northern parts of China, in terms of falling water tables—the Yellow River is now no longer reaching the sea during a very large part of the year—at some point, that area could literally collapse to the point where it could only support a fraction of the number of people it can today. So what is already an enormous flow of human refugees, in effect, could accelerate.

You also have tremendous potential for flooding in the southern parts of China. There are estimated to be roughly 100 million peo-

ple that are vulnerable to sea level rise along as a consequence of global climate change.

I think that understanding of these factors, particularly the way climate change can feed into all of them, is one of the reasons we have seen the Chinese Government, which had been very resistant to undertaking any obligations related to climate change, beginning to show at least some signs of being ready to negotiate in the last year.

Mr. LEACH. Let me just ask one more question and then turn to Earl.

There has been a development, as some of you noted, of a “green” civil society in these countries, and one of the interesting questions is, Is this all about green issues, or is it more about political space and political issues? In this country, if you recall, oh, 30 years or so ago, a very fashionable book was written called *The Greening of America* by a Yale law professor. It was about people who went to these fancy eastern schools and got greened.

There is a follow-on book that no one read that I thought was a much more important book, but because it was written by a couple of Rutgers sociologists, no one gave it the panache, and it was called *The Blueing of America*. The theme of the second book was that while it was true that the sons and daughters of the ownership class in America went to Yale and got greened, people that opt out sometimes do not cause effect in our society. And at the same time that was happening, the sons and daughters of immigrant Americans were going to State universities and then to the business schools and becoming the new heads of America’s corporations under the one precept in American law that most societies in the world do not have, and it is a very interesting one in terms of social mobility. Virtually every public corporation has an anti-nepotism policy in the United States, and that does not exist around the world, and that has caused great social mobility in our country in that the people who go into the system are more likely to make change than go out.

So when I look at the slight greening that is starting to occur in China and India: Are these people that are making an environmental effect, or is it a political effect, or is it a combination because, again, here in America, environmental issues are real, tangible things in some regards, and in some regards, they are a little luxurious, that is, we have the luxury of being for more parks, and other societies do not have that luxury?

In other societies, when you mention environmental issues, you are talking about the ability of a kid to drink the water and live and the ability of a citizen to breathe air that will not kill them. That is the root. I mean, water and air is pretty fundamental, and then to have enough earth to produce food. It is the great fundamentals. In America, we are at some of the esoteric edges. In the Far East, it is sheer fundamentalism, and I would think that would be politically incredibly powerful, but I do not know that. I know, in Eastern Europe at the time of the great transition, that environmentalism was all about anti-communism because the communists were so fundamentally disrespectful of environmental issues that were affecting people. Now, is that the case in China?

Mr. FLAVIN. Well, I think that environmental issues have become one of the few available areas in which there is political space, and the Government has decided that it will allow this huge flourishing of environmental groups. I think the sentiment is real. I think people really are, as you say, Mr. Chairman, very concerned about, particularly, the health consequences, as well as the economic consequences of the environmental problems they face. And I think the Government appears to have chosen the course of allowing that expression of concern to be felt because to bottle it up would be, itself, very counterproductive politically.

Where this will go, whether this will lead quickly or perhaps more slowly to a broader political opening, I think it is very hard to say. But I think the example of Eastern Europe certainly suggests the way in which once you allow civil society to flourish, once you allow people to express their concerns in one area, it is hard to confine it to that one area.

Ms. ECONOMY. If I could just add something to that: As I mentioned in my remarks, many of the first founders of the environmental NGOs in China were actually Tiananmen refugees. They were political activists who knew nothing about the environment but, in fact, saw the environment as a vehicle for advancing democracy. And many of the other sort of next generation of environmental activists, who actually are environmentally savvy and trained, have come to believe that transparency, openness, official accountability are all necessary for effective environmental protection. I think there is absolutely no delinking the politics from the environment in this case. There is a very strong ethos of political activism and advance of political reform within this particular environmental movement.

Part of the danger and why it will be a very slow process unless there is some kind of major environmental disaster, I think, is that they do not want to push too far too fast. They have already come a long way in 10 years. Imagine getting 15,000 signatures on the Internet and bringing a dam to a halt. Ten years ago, you could not even openly discuss the Three Gorges Dam without being put in prison. So just think about that transformation that has taken place. But they are very careful, and they are very smart, and if they overstep their bounds, as was the case with one member in a Chinese environmental NGO who supported openly two Tibetan monks who were about to be executed, the Chinese Government said, "You have to remove this man from your NGO, or we are going to shut you down."

So the Chinese Government is very well aware of the potential for the environment to serve as a locus for broader political discontent.

Ms. BELL. May I just add one small comment to that?

Mr. LEACH. Okay.

Ms. BELL. I think it is really important to emphasize that the people who are stepping out, like Wang Canfa who I mentioned, are cautious. I asked him once about this very issue, and he said he never brings a case that is not consistent with the official line on the environment, so he is very, very careful about what he does. And he does not sue the Government; he sues polluters. Now, sometimes those are state owned, but he sues polluters.

I think you have to be a little cautious about the parallel to Central and Eastern Europe because you just have to remember that most of those countries had a long history, many of them, from the Enlightenment. And what they were looking to do in 1989 was to try to revert back to a European way of looking at things and European values in terms of outspokenness and transparency and other matters. China just does not have that history. They are forging new ground completely as they move forward on these issues.

Mr. LEACH. Thank you. Earl?

Mr. BLUMENAUER. Thank you, Mr. Chairman. I appreciate the breadth of your testimony and providing the context for us. I would like to just move toward one specific area, if I could.

We are circulating a resolution which would reaffirm the commitment that the United States made in Johannesburg 2 years ago dealing with our goals for drinking water and sanitation on a global scale. As you know, on one hand, sort of having that goal out there that we are going to reduce the number of people that do not have access to safe drinking water in half and, likewise, with sanitation, seems like sort of a modest thing for the world to get behind—particularly as it has been expressed that the amount that is necessary to achieve that would be less than half of what the United States spends each year just on soft drinks, bottled water, and beer. Yet the flip side is that we are talking about 175,000 people a day that we are going to provide safe drinking water for; 400,000 people a day for sanitation.

It has been 2 years. You have looked at what is going on internationally. I wonder if you might comment on the progress to date and what we are going to have to do to make sure that that commitment is not empty rhetoric. I would appreciate any of your comments.

Ms. BELL. That is a very big question. I am not sure I can talk about progress to date, but I do think what is really important to focus on in all of this is eventually it comes back to domestic capacity to deal with these problems because the problems of providing safe drinking water, providing sanitation, and making good on international commitments, are functions that must take place in each of the countries. I think there is a strong need to really support building the human capital and the mindset that allows people to really attack these problems in a useful way.

It is so easy to sign a paper at an international conference and say you are going to do something, and there is, unfortunately, a long history of the world being littered with these commitments. I really appreciate the fact that you are trying to draw attention to it again because they are too easily forgotten a year or 2 or 3 out from the actual conference. So keeping the focus is really important but also building the human capital to deal with the issues.

Mr. LEACH. Earl, if I could interrupt for just a second, I apologize. I have a group of farmers that I am committed to work with. Ed is going to take over the hearing, and I want to thank you all for coming. Mr. Royce will chair the hearing, and I want to thank you, Earl. It is still your time. I did not mean to interrupt that. I apologize.

Mr. BLUMENAUER. Thank you.

Mr. ROYCE [presiding]. Dr. Economy?

Ms. ECONOMY. Certainly, I think the United States can always do more to be a leader internationally on the environment, and I think, particularly over the past 4 years, we have not seen much in terms of United States leadership on the environment, and for China, of course, water is critical.

I think Ruth is definitely right, that there is a lot that has to be done within China to make environmental technologies, for example, cost effective, to have there be an incentive to actually recycle water or to conserve water. Water pricing has to be changed in China. So there are things that need to take place on the ground. Having said that, for example, I am aware that independent organizations in the United States—NGOs, universities—for example, the University of Illinois is basically giving away technology to help produce cheap water filters to an institute in Shenyang which is going to scale it up and develop it and probably market it quite effectively. But this is one small effort that is being started. But I think, certainly, the United States, as an environmental leader, ought to be out in the forefront of this issue on a state-to-state, kind of bilateral level.

Mr. SHERPA. If I may add that I think the United States has an immense role in terms of, especially, the freshwater ecosystems around the world. If you talk about China, the Yangtze, if you talk about the Himalayas, the Brahmaputra, the Ganges, you are talking about millions and millions of people who depend on those watersheds.

I think the efforts that I know of that the U.S. Government is putting in—for instance, in my area of South Asia, the health issues and the clean water, clean energy—I think there is immense support. But that needs to be scaled up, I think, in terms of reaching to the more millions of people in terms of getting access to safe drinking water, the health and sanitation issues. Thank you.

Mr. FLAVIN. I am afraid I do not have an answer to your specific question in terms of exactly how well we are doing, though I must say, I would be surprised if either the U.S. or the international community generally is really on track to meeting most of those goals.

I would call your attention to the fact that the United States Commission on Sustainable Development has a focus set of meetings in New York next spring that will look specifically at this question of water and sanitation and looking at the rate of progress and what more needs to be done to achieve those Johannesburg goals.

Mr. BLUMENAUER. Mr. Chairman, if I may, I would appreciate your reflections—I did not mean to spring on you a tangential issue, although I do not personally feel that it is much in the way of being tangential. Mr. Flavin referenced the Yellow River started 15 years ago—the flow to the ocean interrupted for the first time in history, and I think, at one point, it was 230 days.

These are staggering developments, particularly given China having the headwaters of most of the major river systems in Asia that so many countries, as Mr. Sherpa referenced, depend upon.

Your further reflection would be appreciated because it seems to me that the growing consequences of the breakdown, the reference that was made, I think, in Mr. Sherpa's written testimony about

what is happening with global warming, the melting of the glaciers, the disruption of the flow; these are potentially very serious for a couple of billion people, and it seems to me that there is a lot of money that is being spent now on the thousands of people who are dying each day. I think, perhaps, Dr. Economy, you said half a million infants a year.

Ms. ECONOMY. We do not have numbers. You are talking about along China's polluted rivers?

Mr. BLUMENAUER. Well, there is reference to half a million infants, Ms. Bell, just infants that die each year. In many of these communities a lot of money is spent on inadequate supply of water or to take extraordinary steps to get unreliable—just supply in terms of quantity. Your thoughts because policies because you have referenced what we could do with OPIC and USAID because we are doing a lot in some areas, not enough in my mind, but there is stuff going on. If there should be a refocusing or a modest additional investment, it is not that we are not spending the money; it is where we are spending, it is who is spending it, and what we are spending it on. And your further reflection would be very useful to take the excellent testimony you have given and help give it a specific focus in an area that we have already made a commitment. Thank you, Mr. Chairman.

Mr. ROYCE. Thank you. I am going to let Ms. Bell respond, if she would like to, to your question.

Ms. BELL. It was not so much a response, as I would be happy to try to think about that. The figures I quoted were from the U.N. EP. They are figures from 1999, so who knows what they are today for infant deaths because of lack of clean water and good sanitation.

Mr. BLUMENAUER. I am finding, after following it over the last couple of years, that the numbers that are assigned, I guess, in part, because of how one characterizes waterborne disease or needless death from waterborne disease, there is a fairly wide range, but they are all, even if you take the lower bounds, staggering, staggering numbers.

Mr. ROYCE. Thank you, Earl. I thought I would just sort of sum up the case which I think you have all made, which is a case for a rapid adoption and integration of more sustainable development practices in Asia. Now, this is an argument that has been made repeatedly but not heeded, and I think we need to see a buy-in from China and the other economies of Asia, and that buy-in is going to be critical to whether we can work toward the adoption, toward a solution.

I think this panel has shown, with this Subcommittee, a very balanced, forward-looking assessment of both the current trends and challenges in Asia; and that spectacular economic growth in the region has been accomplished by alarming levels of environmental degradation. On the other hand, there are some hopeful bright spots. I know, Mr. Flavin, in your testimony that we read the other night, you were saying you were rather bullish on the idea that China would be open to economic advanced technologies that would mitigate some of this, that a global market for environmental technologies, I think you cited, is \$550 billion, according to the U.S. Department of Commerce figures.

The bulk of this half-trillion-dollar market, of course, lies in these developing countries that we are focused on today where sales of environmental technologies are growing at about 10 percent a year, and I thought I would ask you, Mr. Flavin, if you would like to comment on the commercial opportunities but also the challenges for United States companies seeking to provide environmental goods and environmental services in China and in the rest of East Asia.

Mr. FLAVIN. Thank you. That is really an excellent question which, I think, increasingly should be the focus because it sort of turns the equation around, and we begin to look at economic opportunities as well as economic costs. It seems to me that if you look at the fact that China is now already the world leader in manufacturing—you can go into almost any Wal-Mart in this country, and the bulk of the manufactured goods that are available to the American consumer are made in China.

China has a proven ability now to begin manufacturing—at unprecedentedly low costs—technologies with which they were completely unfamiliar just 5 years earlier, and they obviously have done that in part through forming a variety of joint ventures and other business relationships with Western companies and other companies from around the world.

Mr. ROYCE. Right. But there are social costs and environmental costs to that kind of production. The question is whether they are stepping up to the plate in order to—

Mr. FLAVIN. I agree that there are those issues. I want to point to an opportunity, though, which is that with manufactured technologies and many of these environmental technologies, and that is exactly what they are, the challenge, in many cases, is to bring down the costs. If we could have low-cost, solar-power systems, wind-energy systems, fuel cells, et cetera, et cetera, that would really move our ability forward not only in China but globally, and I think it may well be the case that we will be importing some of these technologies from China. Obviously, there are new laws that are required in China, more opening of the markets is very, very important, but I think the closer the cooperative relationship is on these issues governmentally between the United States and China, the easier it will be for our business community to take advantage of it.

Mr. ROYCE. You mentioned laws, and I was going to ask Dr. Economy because, Dr. Economy, in your testimony, you recommended that the U.S. enhance efforts to promote the rule of law and promote environmental governance, and as you know, during the fiscal years from 1999 to 2003, the United States provided more than \$39 million for democracy-related programs just focused on China alone. So taking the thrust of your testimony, is there any way, in the space of just a few years, to evaluate whether these programs have, in fact, been effective, and if so, can you tell us based on what evidence?

Ms. ECONOMY. That is an excellent question. I have to say that I am aware of some of the work that has been done by the U.S. Embassy. I am aware of some of the work that has been done by the American Bar Association. Three to four years to evaluate the sort of overall effectiveness is not very much time, but I think I can



assure you from all of my experiences looking at the impact of foreign training and capacity building in China's legal system and in China's environmental system, there is no doubt that it has an enormous impact.

I think I can speak more effectively on the environmental front, just to tell you that young Chinese who have been trained by International Rivers Network, who have been trained by Environmental Defense, are the ones who are going back and are leading the charge when it comes to things like energy efficiency or bringing dams to a halt. So I feel very confident that it is having an important impact, but I do not think I am in a position to evaluate the effectiveness of the State Department's rule-of-law programs.

Mr. ROYCE. Well, I appreciate your input on that.

Ms. Bell, did you have something you wanted to say on that point?

Ms. BELL. No.

Mr. ROYCE. I thought you did, but I may have misread you.

I want to thank each of you, Ms. Bell, Dr. Economy, Mr. Sherpa, Mr. Flavin. We will take the testimony that you have submitted here, your written testimony, and circulate it to the full membership of the International Relations Committee, and I want to thank you for your exceptional contribution to our understanding of environmental trends in Asia and the importance of that for the United States and, frankly, the importance of it for the world. We thank you for the expertise you bring to these issues, and thank you for coming down here to Washington today to share your thoughts with us. With that said, this hearing is now adjourned.

[Whereupon, at 2:55 p.m., the Subcommittee was adjourned.]



## A P P E N D I X

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### MATERIAL SUBMITTED FOR THE HEARING RECORD

PREPARED STATEMENT OF THE HONORABLE DAN BURTON, A REPRESENTATIVE IN  
CONGRESS FROM THE STATE OF INDIANA

Mr. Chairman, I look forward to the testimony from our witnesses about the environmental challenges facing the governments of Asia. Members of this Subcommittee have regularly expressed concern about dangerous levels of environmental degradation accompanying spectacular economic growth in the region. The case for rapid adoption and integration of more sustainable development practices has been made repeatedly, though some may argue it has not been heeded.

Judging from our panel of distinguished witnesses today, I expect we will hear about a broad array of challenges facing Asia's leaders: from corruption and weak regulatory frameworks, pollution, deforestation and loss of habitats, protection of endangered species, biodiversity, marine ecosystems and access to clean water.

I would like to shine a light on China, and in many ways my concern about China frames the way I think about this topic. It is clear to me that as China explodes economically, it is imploding ecologically. According to the World Bank, China is home to 16 of the 20 most polluted cities in the world, while deforestation has turned a quarter of the country into desert. With only a tenth as many cars, Beijing pumps out as much carbon monoxide as Los Angeles and Tokyo combined.

*China is now the world's second-largest consumer of oil*, after the United States, and accounted for 35% of the global rise in oil demand in 2003. Clearly, China trade is changing patterns of consumption and production of goods around the world, and its leaders have a major task if they are to avoid overheating the economy. With 1.3 billion people, China's economic growth has bubbled along at a steamy pace of 8 to 10 percent a year for the past decade.

With that growth, auto sales in China have skyrocketed to nearly 2 million this year. Last year, auto sales increased by a staggering 69%. It is estimated that China could have nearly 30 million automobiles by 2010. By 2030, China is expected to have more cars than the United States and import as much oil as the U.S. does today. China is posting approximately 20% growth *per quarter* in demand for oil.

China's spectacular economic growth is accompanied by staggering levels of greenhouse gas emissions accelerating global warming, and equally stunning pressure on the world's oil supply. Ironically, just 10 years ago, China was self-sufficient in oil and actually exported small quantities to other Asian nations. Now, imports account for more than one-third of Chinese oil consumption. Chinese oil firms are now prospecting aggressively overseas to secure supply sources it can exploit itself.

To illustrate the extent to which China is willing to exploit energy resources we need look no further than Sudan. *China is Sudan's largest trading partner* and the main foreign investor in Sudan's oil industry. China National Petroleum Corporation has a 40% stake in the international consortium extracting oil in Sudan, and it is building refineries and pipelines, enabling Sudan to benefit from oil export revenue since 1999. Although most Western oil companies have withdrawn from Sudan under pressure from human rights organizations, Chinese companies have turned a blind eye to the brutal way in which Sudan forced 200,000 to 300,000 of its citizens from oil-rich lands without compensation. These same companies shown no concern that Sudan uses oil revenue to purchase arms for its wars against its black African population. As a member of the U.N. Security Council, China should be called upon to join international expressions to condemn the unfolding genocide. China should also reduce oil purchases from Sudan, should the Security Council decide upon sanctions.

*Chinese troops in Sudan:* While Washington has worked aggressively to marshal international resources and support—and pressured the United Nations Security

Council—to send peacekeeping troops to Sudan to quell the sectarian fighting that has put a million refugees at risk, China has already deployed 4,000 troops to Sudan. *But those troops are there only to protect China's investment in an oil pipeline.* China is concerned that civil unrest could wreck the oil project. It has actually been hostile to U.S. pressure to impose economic sanctions on the Arab government in Khartoum, a key Chinese client, buyer of Chinese arms and partner in oil exploration.

It was no small surprise that China was a major opponent at the Security Council of the war against Iraq, in large part because China had obtained prospective contracts with Saddam Hussein for exclusive exploitation of some oil fields. Perhaps the most worrisome prospect for U.S. policymakers is China's attempt to secure ties with Saudi Arabia, taking advantage of the Saudi regime's tensions with Washington since the 9/11 attacks.

Despite a relentless pursuit to raise the level of prosperity for their people, China must not turn a blind eye to the environment. China's performance in numerous environmental areas—emission of greenhouse gases, use of ozone-depleting substances, reduction of sulphur dioxide emissions, or exploitation of fishing grounds in the western Pacific—will help determine the success of many global and regional environmental protection efforts.

Thank you.

